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VOLUME 54 No. 5 MAY, 1934

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Announcement

We have been unable, due to lack of space, to publish all the features planned for this Jubilee Issue. These special articles, however, will appear in forthcoming issues of the magazine.

The Editor.

PERMANENCY OF ORCHARDING

TREES are still the only plants which defy time. Anything else planted or raised on a farm is of short life, perhaps of only one season's duration. There is, in this time-defying characteristic of trees, an element of security for fruit growers which the industrialist, the merchant and even the gold hoarder have not experienced. With ordinary prudence, deeply-rooted trees represent indestructible wealth and a means of livelihood for generations.

Since the fruit orchard is obviously a permanent investment, it naturally is the desire of growers to reap as large a reward as possible from labors expended. It is in this respect that definite progress has been made in the past 50 years. Quality and productivity have been materially improved. Records of fruit harvests in the last 10 years have shown a gain in production in spite of a reduction in number of trees. Fifty years ago successive harvests of a commercial variety were an event. Now they are of common occurrence. How this has been accomplished, step by step, was published in the editorial pages of this magazine. The process has been so gradual that it is hard to realize that it is the work of 50 years. There have been many leaders and scientists in this work who have contributed immeasurably to the welfare of all fruit growers. These men have been public spirited and contributed their knowledge and experience to the readers of AMERICAN FRUIT GROWER. Their names are frequently seen over instructive and interesting articles. Whenever anything new develops, the alert editors of AMERICAN FRUIT GROWER can be depended upon to pass it along to the readers. There is also much that readers can do in aiding the editors to give them better service. Write about your problems and your experiences. These contribute much to a broader viewpoint and a more complete service on the part of your magazine.

E. K. Meister

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FIFTY YEARS OF ORCHARDING IN

By LIBERTY HYDE BAILEY

A SHORT time ago I drove many miles among the orchards to see the current methods and to contrast with the fruit growing of my early memory. I well knew what the contrasts would be, but I tried to drop out the intermediate years. The orchards I saw were admirable in tillage and general care, and everywhere were evidences of skill and of whole classes of knowledge that no one possessed fifty years ago. I was struck by the uniformity of the enterprises between neighbors, by the small range of varieties, by the effort at quantity-production, and by the organization of everything, the attractiveness of the product.

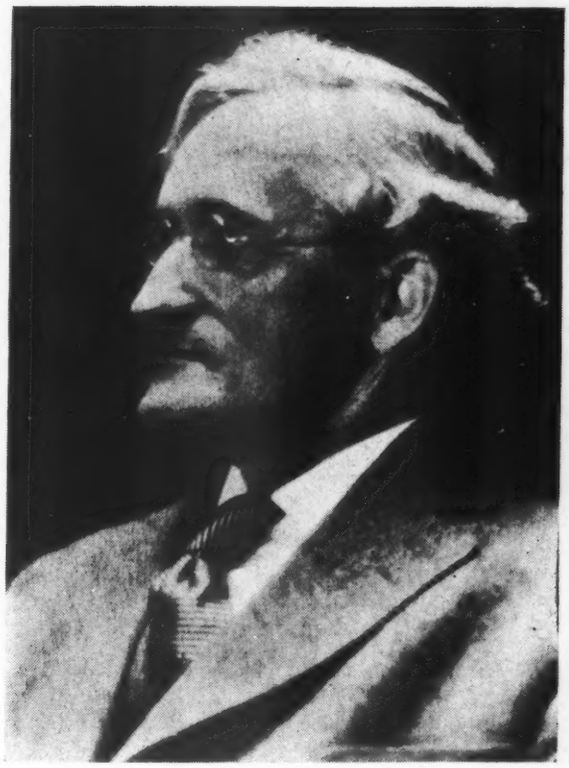
Fifty and more years ago I was top-grafting orchards. The old trees were of any variety or of no variety, many of them seedlings. I had to surprise the trees by pruning them in preparation for the grafting operation. I cut scions in winter from known trees of many varieties, and in bundles they were labelled and buried in the cellar. The grower told me what sorts he wanted, and I tried to have enough kinds to fill the orders. He would want one tree, or two or three, of each variety. The owners of these trees waited eagerly for the different kinds to bear, and would then test and discuss the fruits with discrimination; and at the local fair they would exhibit them with enthusiasm, any exhibit being the better the greater the number of varieties it displayed. There were no displays of "packs". Men prided themselves on the number of kinds they could find on their own places; and there were a few persons in the neighborhood (there were no "communities" then) to whom one could go to settle all controversies as to the identification of kinds.

How different and crude and how far away is all this from the developed practices and customs of the orchardists I have just visited! In this trip I naturally saw no top-grafted trees; and instead of coveting many varieties, the growers wished to reduce them even below their present small numbers. Fruit growing where I rode is a "business", and it takes on the requirements of the unified supervised production and marketing of the day. The contrasts of the two epochs lie not alone in the question of varieties; that is only one of the outward manifestations.

The differences in objectives are real and fundamental. Fifty years ago fruit growing was a home affair, identified with the tastes and emotions of the family, at the same time that it might be profitable. Now the uniform requirements of long-distance shipment, the education of purchaser in regularity by means of grades and standards and trade-marks, the lack of a personal customer, I fear have taken some of the element of original inspiration out of the enterprise for both buyer and pro-

Liberty Hyde Bailey's orchard birthplace, South Haven, Mich.

Liberty Hyde Bailey, one of America's most beloved horticultural teachers, retired some years ago from his official position as Dean of Agriculture at Cornell University. Author of many books on horticulture and rural education, he is probably best known in the scientific field for his Encyclopedia of Horticulture.



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ducer. It acquires something of the drive of big business. As orchards meeting the requirements of the day, the extensive plantations I saw recently are worthy of all admiration and I complimented the growers on their accomplishment, which is properly a source of pride. Success is always satisfying. Yet it is by no means certain that the present uniform massed production in manufacture and commerce, with outside regulation, is to be the predominating process of the future. Persons cannot visualize any other kind of development in trade, but that makes no difference; neither could any one fifty years ago foresee the present standardization.

Human beings crave personal expression and choice. This desire should increase with the education and quickened response of the people. In every way we try to speed the intelligence of the people. In time persons will exercise a more discriminating choice in purchasing fruits even though the choice is not possible in the markets. Growers here and there will discover these classes of customers and will find special satisfaction in trying to meet their particular needs. Personal independent relationships between producers and consumers will be established for such articles of the earth as are used directly in their natural state without the intervention of manufacturing or disguising processes. Fruits and flowers are such articles. It would not make much difference in wheat and flax and cotton. This will be a kind of relationship that cannot be expressed in the roadside stand, of which we now hear so much. We cannot prevent sensitive persons from expressing themselves separately, even though the eventuality is long in the future. Even now we are not without examples. The standardized product will continue to serve the other demands.

I have no objection to standardized and massed production: I only refuse to accept the common assumption that it is the single destiny of trade and that the burden of teaching and public advice should be in market quotation, statistics, commodity movements, and immediate money-making. This attitude has special application to fruit growing because of the nature of the product itself. Fruit plants naturally yield a variable produce and there is special delight in the rearing and handling of these variables. We ought never to be so old but that we should like to grow a good variety of fruits or vegetables or flowers or even to sow seeds to produce new kinds. Otherwise, of what significance are the efforts of our experimenters to originate new varieties of fruits?

"Variety's the very spice of life", and this is as true today as when Cowper wrote it in 1785. "No pleasure endures unseasoned by variety" is a maxim of Publius Syrus, old Roman. Children are entranced by variety and change; they are the spontaneous elements in human society. But with the regulating and standardizing of everything, many of us older ones must have noise and entertainment manufactured for us, provided, of course, it is painless. Perhaps some of our enthusiasms should be listed with canned goods.

The possibilities for sheer enjoyment in the raising of fruits are unimagined. Fruit growing is a wonderful and captivating subject, full of color, sunshine and flavor, with variety and interest for every taste, albeit these rewards may be denied the people. I am convinced that we are not reaching the possibilities and full rewards in the growing of fragrant yields of the earth. We are not making the most of pomology. Emotion and not alone profit-and-loss is a guiding force in human development; it may be well expressed in good fruits of good variety. I regret the personless method of teaching.

I am not thinking of "amateur" growers in making all these remarks. Perhaps in time we shall acquire a new direction in fruit-raising that will still be profitable; and it may be quite beyond our approved imaginations. Our thinking in these subjects is now controlled by cheapness (or cost); sometime we shall think more diligently of inherent quality and variety if we attain to the development of which the race is capable.

VARIETY ROMANCE IN AMERICAN POMOLOGY

FIFTY years ago last September the American Pomological Society met at Philadelphia on the invitation of the Pennsylvania State Horticultural Ass'n. The society was then 35 years old. Marshall P. Wilder of Boston was its president, and Prof. W. J. Beal, Lansing, Mich., its secretary.

The report of this A. P. S. meeting of 1883 is a marvelous revelation of horticultural history in the making. Leading horticulturists of the times were there and each contributed actively to making the meeting a success. And what was the dominant theme? Varieties, variety adaptation and variety lists! Varieties were cussed and discussed; new ones added to the lists and old ones dropped. President Wilder described the fruit lists in the following words, "The Catalog of Fruits published by the Society includes nearly all the states and territories, is filled with information as to the fruits in the respective locations." Patrick Barry, Rochester, N. Y., was chairman of the General Fruit Committee. Each of the states was represented on the committee by some prominent horticulturist. These delegates contributed statements as to the progress of horticulture in their respective states and usually gave the latest information relative to fruit variety lists. Some of the state reports are extremely interesting and when studied reveal the tremendous changes which have occurred in America with respect to recommended fruit variety lists. Several good examples follow.

Elisha Moody, chairman of Fruit Committee for the State of New York, wrote as follows: "Nine-tenths of our market orchards are planted with Baldwins, Rhode Island Greening, Roxbury Russet, Tompkins County King for winter; Red Astrachan, Early Harvest and Sweet Bough for summer; Duchess of Oldenburg, Fall Pippin and Maiden's Blush for fall. For the past few years the Mann apple has been planted considerably, and in my opinion it is the very best sort that can be planted at this time."

C. W. Lawton, chairman of Fruit Committee for Washington territory, reported severe damage from a cold wave of —8° F. which killed old trees, as well as much nursery stock. Amid despair he wrote, "I am beginning to think that I know nothing about this climate now and the varieties of fruit that I thought were just suited to it have proved not to be so."

Col. B. G. Brackett, chairman of State Fruit Committee for Iowa, wrote, "The past winter ('82-'83) was a severe one. The damage to orchards throughout the state was very great, destroying in some sections a large portion of the once thrifty trees. Varieties suffering least are Tetofsky, Duchess of Oldenburg, Pewaukee, Walbridge, Red Astrachan, Fameuse, Haas, Wealthy, St. Lawrence, English Russet, Lowell, Grimes Golden, Red Stripe and Roman Stem."

The catalog of fruits as issued by the A. P. S. in 1883 and again in 1885 represented a tremendous amount of work. By means of symbols, varieties were rated as to size, color, quality and season, and as to local adaptation in the various fruit regions of the United States. There were 337 varieties of apples listed, 117 of pears, 111 of peaches, 75 of plums, and many varieties of grapes, strawberries, bramble and bush fruits.

During 50 years, fruit growing has made tremendous advances. The discovery of new and improved varieties has done more to advance horticulture than any other one thing. Fifty years ago fruit growers were constantly searching for better varieties. So it is today! Many leading varieties of 50 years ago are no longer planted except in a limited way, and some are entirely forgotten. Others like Baldwin, Northern Spy, Esopus, Rhode Island Greening, Ben Davis—long standard commercial sorts—are slipping one by one and another 50 years may list them too as "has beens." New and better varieties are gradually crowding them into less and less important positions. During the 50 years just past, Delicious has forged to the front as a leading variety. Rome Beauty, McIntosh, Golden Delicious, Cortland, Turley and Stayman are all notable and comparatively new as varieties go. And to make it still tougher for the old standards, along comes a list of red bud sports which threaten to replace their parent varieties.

Present Day Trends

A lot of water has passed under the bridge of horticultural experience. Commercial fruit growing dominates the picture. Fruit growers are constantly planting fewer and fewer varieties. The amateur fruit grower of yesteryear who planted many varieties and kinds of fruit is rarely found today. It therefore is the task of experiment stations to test new against old varieties on an extensive scale so that fruit growers may be advised in due time of the value or otherwise of new varieties. A few nurserymen as well as some orchardists, both amateur and commercial, are still engaging in conducting variety trials on a more or less limited scale and doing a good job of it.

Since 50 years ago, when nine-tenths of the commercial apples produced in New York were Baldwins, Rhode Island Greenings, Roxbury and Tompkins King, these old varieties have slipped one by one. McIntosh and others have become important. Since the winter-killing of 1883 out in the Northwest, extensive orchard planting was begun and continued. Even there a great many of the varieties first planted have passed out of the picture and today Delicious, Winesap, Jonathan, and Rome Beauty account for over three-fourths of the apple trees in Washington.

In the Middle West test winters have occurred with considerable regularity and have had a profound effect upon orchard planting and in the selection of varieties and kinds of fruits planted. Of the varieties which had suffered the least winter injury as reported upon in 1883 by Col. Brackett, only one, the Grimes Golden, is being planted commercially today. Leading varieties are Jonathan, Delicious, Grimes Golden, Golden Delicious, Winesap, and a few Rome Beauty and Stayman—none of which were mentioned in Col. Brackett's report of 1883!

History in horticulture reads like romance. What has transpired in the apple kingdom has also been true with nearly all other kinds of fruits, except that changes have come about much more rapidly in the case of the small fruits and the plums.

In all fruit lines the demand is for varieties of better quality, more attractive color, and those which will stand commercial handling with a minimum of loss. The fruit grower demands fruits which resist disease. Trees which grow well, load up with profitable crops, hold their fruit and which produce fruit of uniform size and color are some characteristics which every fruit grower desires in order to realize the satisfactions to which he is entitled. New varieties which do the job better than their predecessors eventually become important varieties. The watchword for 50 years has been, and still is, "Sift and then sift some more."

H. L. LANTZ, *Sec'y* A. P. S.

FRUIT WORK THROUGH THE YEARS WITH THE FEDERAL BUREAU OF PLANT INDUSTRY

By WILLIAM A. TAYLOR

THE Bureau of Plant Industry as an administrative unit dates from July 1, 1901. However, some of the activities consolidated into it are of considerably earlier origin. This is especially true of certain features of its botanical, pathological, pomological and plant introduction work, which bear rather directly on fruit growing and have paralleled or even antedated AMERICAN FRUIT GROWER and its forebears. The record of these activities in the U. S. D. A. synchronizes approximately with progress in scientific research in these fields. While many of the scientifically important and economically beneficial achievements of the Bureau have been reported through publications (about 6,000 of which have emanated from the Bureau during the last 20 years) space permits reference only to a few which because of fundamental character, timeliness or prompt and extensive adoption and practical application, merit special mention. In certain of these, very important co-operative service has been rendered by state experiment stations and by co-operating industrial and transportation agencies, the recognized leadership resting in the Bureau.

Early among these great services would be the work of the late William Saunders, which began in the Department of Agriculture in 1862, soon after the signature of the Organic Act by President Lincoln on May 15 of that year. His introduction of the unique Washington Navel orange from Bahia, Brazil, in 1870, coinciding as it did with the progressive availability of irrigation water and railroad transportation in the subtropical valleys of southern California, profoundly influenced the settlement and development of the Southwest and constituted the chief factor in the establishment of the citrus industry there which now yields an annual return to the region of approximately $100,000,000. His introduction from Russia at about the same time of the Yellow Transparent apple, materially advanced the availability of apples for both home use and market, throughout most of the apple growing portions of the United States and Canada.

Of outstanding importance in the last 15 years of the 19th century, begun by Scribner and vigorously prosecuted under the leadership of Galloway, was the work of Fairchild, Waite, Swingle and others, through which the then new fungicide, Bordeaux mixture, discovered by Millardet in France (1883-85) was so Americanized with respect to formula, method of preparation, schedules of application and character of spray equipment, as promptly to become the first important and generally used horticultural fungicide. Through this work there was developed the first practical control of grape black rot, apple scab and pear leaf blight. Later (1907-08) the mild self-boiled lime-sulphur summer spray was developed by W. M. Scott. This quickly became the standard control treatment for these diseases. The recent development by Roberts of the zinc lime fungicide for controlling peach bacteriosis, through experiments which included 160 different fungicides is a notable example of effective painstaking research in the same general field.

The intensive researches of E. F. Smith (1887-98) through which the communicability of peach yellows by bud inoculation was scientifically established, cleared away much of the mystery which for a century had confused investigators and fruit growers alike, and brought it clearly into what is now recognized as the virus disease category along with rosette, the more recently discovered "little peach" disease, diagnosed by Waite, and "phony peach," for some years under intensive experimental investigation by Hutchins. The extensive, prolonged and productive research upon these diseases not only established practical methods for their control but also paved the way for much productive work on virus diseases by other investigators in related fields.

The control of apple scald which for a human generation baffled investigators, producers and the storage industry alike, through the oiled paper wrap method, developed by Brooks, Cooley and Fisher, has lengthened the effective marketing season of many winter varieties to the extent of six or eight weeks, thereby reducing the market glut tendency to that extent. In the form of shredded paper, its use is becoming common in the barrel and basket districts, and on fruit for export.

Numerous other more or less widely adopted fruit disease control practices have resulted from the work of the Bureau, such as pear blight, pecan scab, and rosette, citrus scab, melanose, stem-end rot and blue mold decay, cranberry false blossom and fruit rots by Shear, Stevens and associates, the practical value of which to the fruit industry is widely recognized, including the control of watermelon stem end rot developed by Meier.

An outstanding example of the value of intensive research on a destructive orchard disease which resulted in prompt discovery of cause and correspondingly effective development of control, is that of citrus canker in the Gulf states. Unwittingly introduced to Texas on citrus nursery stock from Japan, it was widely disseminated through the Gulf states on citrus nursery stock before its highly infectious and destructive character was recognized. When it reached the grapefruit districts of subtropical Florida, it was quickly evident that existence of the entire citrus industry of the country was threatened. Intensive field and laboratory research resulted in the discovery of the causal bacterial organism by Miss Clara Hasse in 1914. A region-wide eradication campaign promptly organized under the leadership of Kellerman, financed by Congress and the states endangered, has resulted in the almost complete extermination of the disease.

(Continued on page 23)

Welcome! Fifty-Year Club Members

AMERICAN FRUIT GROWER proudly announces the official formation of the Fifty-Year Club, organized to commemorate the magazine's Golden Jubilee and to pay fitting tribute to the men in the field who have dedicated fifty years of personal service and devotion to the business of fruit growing. An Honor Roll of the charter members appears below:

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Richmond, Va.
S. S. Hopkins,
Youngstown, N. Y.
John Husser,
Minneiska, Minn.
T. A. Hux,
Tavares, Fla.

Lon Jewett,
Head Tide, Maine

Bert Johnson,
Nashville, Ark.
D. B. Johnson,
Mooresville, Ind.

Ben Kramer,
Placentia, Calif.
Sam Kramer,
Placentia, Calif.
H. P. King,
Trumansburg, N. Y.
Ben Kress,
Hamilton, Mont.

A. Lemke,
Placentia, Calif.
W. P. Lett,
Riverside, Calif.
K. B. Lewis,
Red Hook, N. Y.
G. M. Lincoln,
Bentonville, Ark.
Mortimer Lincoln,
Bentonville, Ark.
James A. Lyons,
Prior Lake, Minn.

Charles MacRae,
Woodside, Mont.
Willis T. Mann,
Geneva, Ohio
George Marshall,
Arlington, Nebr.
A. S. Matlack,
Sorrento, Fla.
Oscar McDonald,
Prior Lake, Minn.
Thomas F. McNiff,
Littleton, Mass.
D. Gold Miller,
Gerrardstown, W. Va.
H. W. Miller,
Paw Paw, W. Va.
John M. Miller,
Gerrardstown, W. Va.
L. P. Miller,
Paw Paw, W. Va.
T. E. Mills,
Helena, Mont.
George E. Murrell,
Carriere, Miss.

John B. Oberholzer,
Emerelda, Fla.
I. D. O'Donnell,
Billings, Mont.
Michael Oleson,
Montevideo, Minn.

W. S. Perrine,
Centralia, Ill.
Father Placidus,
Altus, Ark.
E. M. Pollard,
Nehawka, Nebr.
(Mrs.) M. Pugsley,
Woodbine, Iowa

William H. Reid,
Tennent, N. J.
Daniel Rice,
New Bloomfield, Pa.
F. A. Ricker,
Turner, Maine
W. J. Ricker,
Turner, Maine
Miss Amelia Riehl,
Godfrey, Ill.
E. E. Risien,
San Saba, Tex.
Dr. J. S. Rittenhouse,
Lorane, Pa.
Horace Roberts,
Moorestown, N. J.
Elijah Rogers,
Southington, Conn.
W. P. Rogers,
Williamson, N. Y.

Jay M. Sage,
Chardon, Ohio
Joseph Saxe,
Altus, Ark.
Henry Scarborough,
Payson, Ill.

Henry Schaeffer,
Sparta, Mich.
Henry Seymour,
Payson, Ill.
R. N. Simpson,
Vincennes, Ind.
L. B. Skinner,
Dunedin, Fla.
Fred J. Smith,
Pomona, Calif.
George Smith,
South River, N. J.
J. Russell Smith,
Swarthmore, Pa.
H. B. Stevens,
De Land, Fla.
Charles Storer,
Clyde, Ohio
J. W. Stubenrauch,
Mexia, Texas
D. B. Swingle,
Bozeman, Mont.

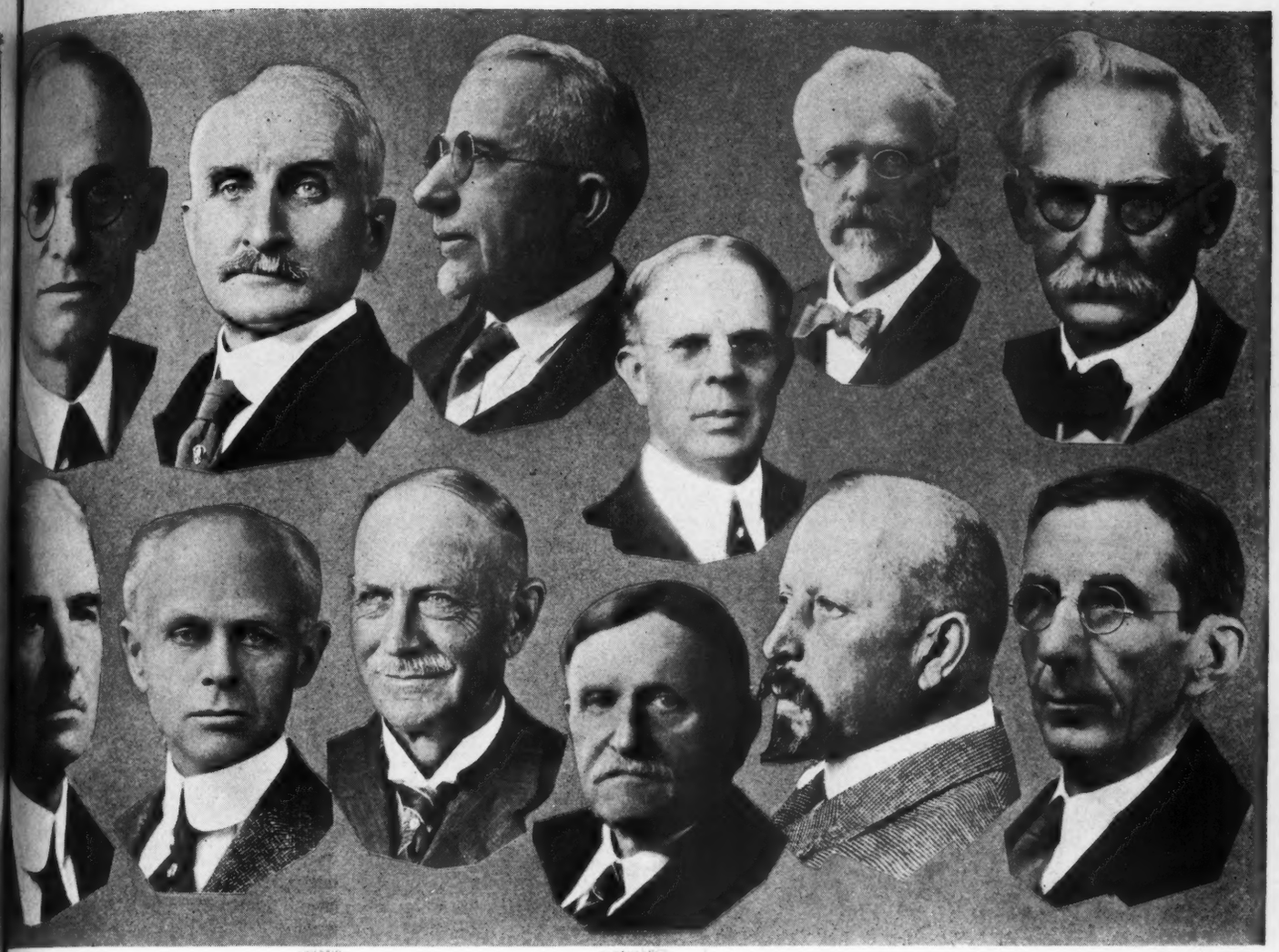
Judge F. S. Tavenner,
Woodstock, Va.
C. C. Teague,
Santa Paula, Calif.
T. E. Thornburg,
Ashland, Ohio
W. G. Thorne,
Auburn, Maine
Arthur L. Towson,
Smithsburg, Md.
C. H. True,
Edgewood, Iowa
Charles E. Trunk,
Dundee, Ore.
Jim Turner,
Clarksville, Mo.
G. M. Twitchell,
Auburn, Maine
C. J. Tyson,
Gardners, Pa.

Ed Umlor,
Conklin, Mich.
George Unge,
Shakopee, Minn.

William F. Vogel,
Prior Lake, Minn.

W. F. Ward,
Guilford, Ind.
E. L. Wartmann,
Citra, Fla.
C. C. Washburn,
Mechanic Falls, Maine
J. B. Watkins,
Midlothian, Va.
Charles Lee Wayland,
Crozet, Va.
Henry Webber,
Monroe, Maine
W. G. Weeks,
New Iberia, La.
Lincoln S. Weldon,
Rockford, Ill.
D. M. Wertz,
Waynesboro, Pa.
J. B. Wight,
Cairo, Ga.
C. C. Willis,
Plains, Mont.
John W. Wood,
Linden, Va.
Samuel Wood,
Charlottesville, Va.
B. A. Woodford,
Claremont, Calif.
E. W. Wooster,
Ellsworth, Maine
Daniel Wright,
New Bloomfield, Pa.
J. Harrison Wright,
Riverside, Calif.

A. Yale,
Grinnell, Kan.
W. D. Yonally,
Grand Island, Fla.
B. M. Young,
Morgan City, La.
Frank Young,
Quincy, Ill.



Top Row: Waugh, Taylor, Alwood, Hedrick, Hansen, Corbett; *Bottom Row:* Marlatt, Sears, Waite, Taft, Howard, Galloway

FIFTY YEARS OF HORTICULTURAL LEADERSHIP

WILLIAM B. ALWOOD—Fruit grower, Greenwood, Va. Formerly director hort. research, V. P. I.; co-designer earliest power spray machinery; chemist, U. S. D. A.

L. H. BAILEY—Retired dean of agr., Cornell. Botanical explorer, author, editor; Ithaca, N. Y.

J. A. BALMER—Former horticulturist, Wash. State Coll.; florist. Retired, Auburn, Wash.

F. T. BIOLETTI—Prof. of viticulture, Univ. of Calif., Berkeley.

J. C. BLAIR—Horticulturist, Univ. of Ill., Urbana. Formerly horticultural teacher in Canada. Past pres., A. P. S.

FRED W. CARD—Fruit grower, Sylvania, Pa. Formerly pomological teacher and investigator, Nebr. and R. I. Author of "Bush Fruits."

L. C. CORBETT—Senior horticulturist, U. S. D. A., Washington, D. C. Formerly horticultural teacher and investigator, N. Y., S. D. and W. Va. Author.

A. B. CORDLEY—Retired dean of agri., Ore. State Coll., Corvallis. Formerly entomologist; early investigator on lime-sulphur sprays.

F. V. COVILLE—Botanist, blueberry breeder; curator U. S. Nat. Museum, Washington, D. C. Joint author, "Standardized Plant Names." In U. S. D. A. since 1888.

P. H. DORSETT—Retired as senior horticulturist, Div. of Foreign Plant Introduction. Foreign explorer, U. S. D. A. 1891-1932.

DAVID FAIRCHILD—Principal agricultural explorer, Coconut Grove, Fla. In U. S. D. A. since 1889. Author.

A. T. GALLOWAY—Pathologist, U. S. D. A., Washington, D. C. Formerly chief B. P. I.; dean of agri., Cornell Univ.

CHARLES W. GARFIELD—Fruit grower, banker, Grand Rapids, Mich. Only living charter member Mich. Hort. Society. Sec'y A. P. S. 4 years. Horticultural development and beautification work.

C. P. GILLETTE—Retired state entomologist and director, Colo. Exp. Sta., Fort Collins. Formerly entomological teacher and investigator. Glenndale, Md.

H. E. HANSON—Horticulturist, S. D. Agri. Coll., Brookings, since 1895. Explorer, introducer of new fruits.

U. P. HEDRICK—Director, N. Y. Exp. Sta., Geneva, N. Y. Formerly horticultural teacher and investigator. Author many fruit books and monographs.

L. O. HOWARD—Retired principal entomologist, Bureau of Entomology (chief 1894-1927) U. S. D. A., Washington, D. C. Author.

H. HAROLD HUME—Horticulturist, ass't dean and director, Univ. of Fla., Gainesville. Author of citrus and pecan books.

GEORGE C. HUSMANN—Retired viticulturist (1901-31), U. S. D. A., Washington, D. C.

CHARLES A. KEFFER—Director, Extension Service, Univ. of Tenn., Knoxville; formerly horticulturist, S. D., N. M., Tenn.

E. R. LAKE—Retired pomologist, U. S. D. A., Fairfax, Va. Formerly horticultural teacher and investigator. Sec'y A. P. S. 1912-20.

CHARLES L. MARLATT—Retired, Chief, Bureau of Entomology, U. S. D. A., Washington, D. C. Sponsored Plant Quarantine Act.

AVEN NELSON—Botanist and horticulturist, Univ. of Wyoming, Laramie.

WENDELL PADDOCK—Prof. of horticulture. Ohio State Univ., Columbus, since 1909. Author of fruit book.

P. H. ROLFS—Retired pathologist and horticulturist, Gainesville, Fla. Formerly investigator and teacher in Ia., Fla., and S. C.; director Superior School of Agriculture, Brazil.

FRANK LAMSON SCRIBNER—Retired mycologist and agrostologist, U. S. D. A., Washington, D. C. Began U. S. D. A. 1885. Author.

FRED C. SEARS—Horticulturist Mass. State Coll., Amherst. Labrador garden adviser with Sir Wilfred Grenfell, explorer.

C. L. SHEAR—Senior pathologist, Plant Disease Survey, U. S. D. A., Washington, D. C. Former Va. fruit grower. U. S. D. A. since 1898.

L. R. TAFT—Retired horticulturist, Mich. State Dept. of Agri., East Lansing. Chairman, Hort. Jury, St. Louis Exposition of 1904.

WILLIAM A. TAYLOR—Collaborator; retired chief B. P. I., U. S. D. A., Washington, D. C., after 42 years of federal service. U. S. hort. rep., Paris Exposition. Author of many horticultural papers.

JAMES TROOP—Chief entomologist, Purdue Univ., Lafayette, Ind.; formerly prof. of horticulture.

M. B. WAITE—Principal pathologist, Fruit Investigations, U. S. D. A., Washington, D. C., with 46 years of federal service.

RALPH L. WATTS—Dean and director, Exp. Sta., Penn State Coll.; formerly prof. of horticulture.

F. A. WAUGH—Horticulturist, Mass. State Coll., Amherst; consulting recreation engineer for U. S. Forest Service. Author many books.

H. J. WEBBER—Prof. subtropical horticulture, Citrus Exp. Sta., Riverside, Calif. Plant breeder, plant physiologist.

THE PAST 50 YEARS THROUGH THE PAGES OF AMERICAN FRUIT GROWER

By JOHN T. BREGGER

FOR one who cannot himself look back over the last 50 years of fruit growing history, it has been most interesting to see this half century through the eyes of other observers. Let us refer to the contributors and editorial staff of AMERICAN FRUIT GROWER and its predecessors (Green's Fruit Grower and Western Fruit Grower) for this review. Fire having destroyed the most complete file of these magazines, it became necessary to hunt other sources of this material.

The Congressional and U.S.D.A. libraries, in Washington, D. C., probably contain a more complete set of early issues than may be found anywhere else in the world. It was through these files that the following record of the last 50 years of horticultural history is largely gleaned. Let us therefore "ramble" through these writings of an earlier day and read the progress which 50 years of orchard experience have to offer the fruit growers of today.

Where was fruit growing 50 years ago? In what lay the growers' main interests, their chief problems? To whom did they listen for solutions of their problems?

Let us go back exactly 50 years and scan what is probably the oldest copy of AMERICAN FRUIT GROWER now in existence. A vital point of interest to both the horticulturists and fruit growers of 50 years ago was the matter of varieties. Almost half of the editorial material of those days refers to the matter of new and old varieties, where they were adapted, etc. Emphasis was on orchard culture. Information was given on tree planting and transplanting. Roadside planting of fruit trees was common. As in the England of today, fruit trees were "manured" rather than "fertilized." Small fruits were having their inning. Much fruit which did not find its way into the fresh market was dried or evaporated for home consumption and commercial trade. The human side of fruit growing was emphasized and we find such articles as would be inspired by the title, "A Walk Over the Farm."

It is interesting to note that the future for deciduous fruit growing seemed very bright 50 years ago as we read in October of that year an opinion of *The Chicago Tribune* that "the prices of fruit will never be low again in this country. The facilities of transportation are so abundant and the foreign demand for evaporated fruit so constant and increasing that fruit-growing in the United States may be considered established as a paying business 'while grass grows and the water runs.'"

But how quickly that picture was to change. The future of fruit growing has been a matter of conjecture throughout the years. If people could know what the future is to be, there would be less interest in it. Because of its uncertainty, however, we find since years ago the attempt to size up the future from the standpoint of an everlasting profitableness of this or that kind or variety of fruit, and all too often the majority guesses wrong.

There followed soon after 1884 a period where the condition of fruit growing was, to say the least, unpromising. The average apple orchard in New York and Michigan had become "old." Scab, canker worm and codling moth, which had given little trouble in earlier days, were becoming a more serious problem, and little was known about fighting them. This brought a definite decrease in the acreage of apple orchards, particularly the old orchards of the North. Yellows had reduced the profits of peach growing and in turn the acreage. Prices had in 1888 gone down to where good Northern Spies brought no more than $1 per barrel "on the table." In spite of these low prices, however, one "S.D.J." of Connecticut, reported in 1891 that "if we farmers cannot get but 40 cents a bushel for apples, that pays better than any crop on the farm."

During this period when northern orchards were suffering the first severe ravages of insects and scab, the districts of the South and Central West had gone into fruit growing on a commercial scale. For several years after these orchards came into bearing many carloads of clean fruit were shipped to eastern markets, leaving little consolation for the northern growers. But even this heyday was short-lived because soon they too were hit by the ravages of pests which were found to grow faster and fatter in the warmer climate, just as the fruit trees had done.

By 1900 we had arrived toward the end of the great transition period for the apple grower. Many orchards had been destroyed on account of their age and neglected condition. Regular or annual crops were the exception, though one Michigan grower is reported as having succeeded in producing eight successive crops "by the application of intelligence and hard labor." His 40-acre orchard had averaged a net acre profit of $40 per year. The "ordinary well-known methods of care" included "good culture, fertilization, careful pruning and thorough spraying in season."

With the coming of the 20th century, we have our fruit growing picture considerably widened. By this time the great Northwest had been developed into an apple country and both deciduous and citrus fruits had been planted on a commercial scale in many sections of California. These plantings had hardly come into production, however, when below normal apple crops in four consecutive years, 1907 to 1910, resulted in a planting boom between 1909 and 1912. This was cut short, however, by the resulting low prices of three above normal crops which followed. Although this was the last general planting boom for apples, they have since occurred in cling peaches, pears, and grapefruit, of which the final reckoning has not been reached. In small fruits where the planting waves are usually of shorter duration, the trends of production and prices have been equally effective in swerving the interest in new plantings.

AMERICAN FRUIT GROWER during its 50 years of service has probably contained the writings of more great horticultural leaders than any other

(Continued on page 21)

"Black Leaf 40"

TWO-FOLD PROTECTION IN YOUR FIRST BROOD SPRAYS

IF you use Lead Arsenate (and expect to wash your fruit to remove the lead and arsenic residue), add about ¾ pint of "Black Leaf 40," per hundred gallons, for better control of codling moth. Lead Arsenate and other "stomach-poisons" kill the worms *after* they eat. "Black Leaf 40" kills them *before* they eat; hence it reduces stings, and a few stings make a cull.

"Black Leaf 40" may be added to any standard insecticide. It kills by contact, fumes and vapors—the adult moths, mature eggs and young larvae; also aphis and leaf-hopper.

CONTACT-FILM CONTROL OF CODLING MOTH
with "Black Leaf 40" and Summer-Oil

To avoid illegal residue, without washing, use this combination of two valuable and effective contact insecticides. The protective contact-film on the foliage and fruit, maintained by applications ten days apart, stops codling moth. It is active—kills adult moths, eggs and larvae, by contact, fumes and vapors. Gives more bushels of packed fruit. Also controls mites, aphis, leaf-hopper. What about the cost? The crop, when you pick, grade and pack it, is the answer.

"BLACK LEAF" 155

This product, developed by our Research Department, is highly toxic to codling moth. It is usable with colloidal-sulphur fungicides. Also with Summer-Oil. Furnishes a protective contact-film that lasts longer. Packed in 5-lb. paper bags; 10 bags per carton. Dosage 1 bag (5 pounds) per hundred gallons. Available in limited quantities during 1934.

"Black Leaf 155"

Write for literature

FROM PARIS GREEN TO MODERN INSECTICIDES

OF ALL the orchard practices, none have shown greater change during 50 years or even shorter periods than those used in the control of insect pests. With the advent of the potato beetle, the fact was made clear that arsenicals could be used for the control of chewing insects. Fruit trees at an early date became troubled by codling moth, canker worm, curculio, and similar insects to which the same insecticides could be adapted.

Paris green was the first insecticide used in fruit pest control. Its use on potato vines began in the early sixties. In 1872 it was first applied on fruit trees for control of canker worm on the suggestion of Dr. Le Baron. It was again used in orchards of Illinois in 1873 and four years later was definitely advised for general usage by Prof. A. J. Cook, of Michigan.

One year later, in 1878, upon the advice of J. S. Woodward, of Lockport, N. Y., Paris green was sprayed on a few trees in the E. P. Haynes Orchard, after which it was noticed that less codling moth injury occurred on these particular trees. This fact was reported by Mr. Woodward in the New York Horticultural Society meeting of 1879, at which time he was almost hooted off the platform. The following year, however, Professor Cook corroborated these findings and since that time arsenicals of one or more kind have been in continual use.

It was not until somewhere in the nineties that lead arsenate came into use and replaced the other arsenicals. Its insecticidal value first became evident in controlling the gypsy moth in New England. Paris green was still being recommended for codling moth control as late as 1904, but the use of eight pounds of arsenate of lead in 100 gallons of water applied at petal fall was thought preferable. By 1910, however, it was in extensive use for codling moth. At first the paste form of lead arsenate was used, changing about 1908 to the dry or powder form.

Calcium arsenate, first used in 1908 as an insecticide by S. V. Pickering, of The Woburn Experimental Fruit Farms of England, was adapted to boll weevil control in this country about 1920. Since that date its use not only has increased greatly, but has spread to many fruit crops, reaching a maximum application in 1933. In the meantime, two new arsenates, magnesium and manganese arsenate, have made their appearance. The latter was developed in 1922 but has not experienced commercial usage until the last few years. The most recent trend is away from the use of calcium arsenate and decidedly back towards arsenate of lead, particularly in apples, because of its greater sticking power, effectiveness, and all-round dependability.

The arsenites are not as common for insecticidal use as the arsenates. London purple (calcium arsenite) largely replaced Paris green for fruit tree use in the late eighties because of its ability to stay longer in suspension. Zinc arsenite came into the picture about 1918, but has never had wide acceptance for general pest problems.

About 1898 lime-sulphur solution was tested out as a scale remedy, which of course brought it into the insecticide class. During the early seventies and eighties, soap emulsion had become standard as a contact insecticide, while pyrethrum was recommended for control of household insects. Other organic insecticides, such as rotenone, have come into use on vegetable and truck crops but are not yet successfully adapted for fruit use.

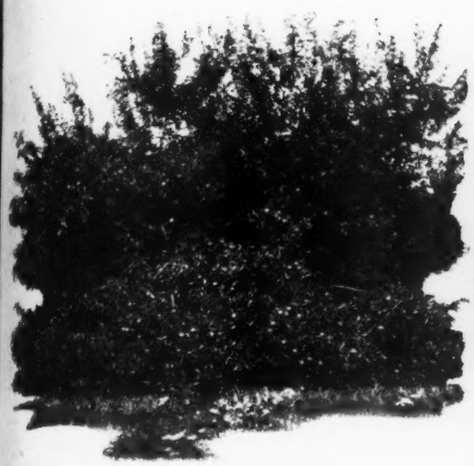
Although soaps (suds) had been used for insecticidal work long before 1841, and tobacco as a fumigant at an early date, their general use did not replace kerosene emulsion until much later. There is record of tobacco and soap being used as long as 100 years ago. The use of oil as a contact insecticide is in comparison more recent. But "the rise of oil sprays" is a story by itself.

Fluorine sprays were first used for control of Colorado potato beetles and roaches in England (1896). Marlatt, in 1915, recommended sodium fluoride on roaches, but this substance was not used on fruit trees until about 1925, when Newcomer used it in Washington. Cryolite as well as sodium fluosilicate was introduced in 1924-25, and barium fluosilicate in 1925. Natural cryolite (sodium aluminum fluoride) is obtained from Greenland in the rock form, being finely ground for insecticidal use.

Oil and nicotine, long used separately as plant sprays, came into specific use in combined form about 1928. As such it is not only an ovicide, but both a contact and internal insecticide. Another nicotine combination now showing insecticidal possibilities is nicotine-bentonite sulphur, commonly known as nicotine tannate.

In the days of Paris green!

Longer and Better Protection Against Codling Moth

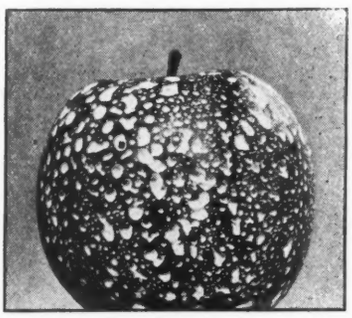


HERE'S THE TRUTH ABOUT THE KILLING POWER OF *S-W* ARSENATE OF LEAD

● Sherwin-Williams Arsenate of Lead does not contain any cheap ingredient or astringent. It is just 98 per cent pure Arsenate of Lead possessing physical properties that insure a high deposit uniformly distributed as a blotchy covering on your apples. Facts based on scientific research are what you want. These two apples selected at random and sprayed under identical laboratory conditions tell their own story.

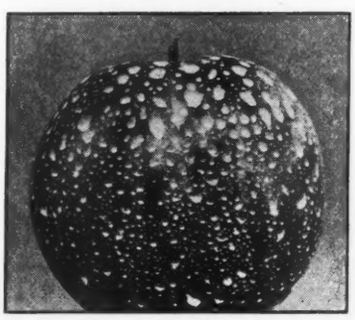
Lab. No. 1431

This apple was given four sprays of Sherwin-Williams Arsenate of Lead—3 pounds to 100 gallons of water. Total deposit 143 micrograms of unadulterated arsenic oxide per square inch . . . *just 50% more killing power to the square inch than its sister apple, sprayed under identical conditions, but using Arsenate of Lead containing an astringent.* S-W Arsenate of Lead contains no deflocculator or astringent, insuring the maximum possible deposit and high toxicity.



Lab. No. 1432

This apple, identical in every respect to the one used in test 1431, was sprayed with an astringent type of Arsenate of Lead stated to contain 93% active ingredients and an alum content of 2¼% to 3%. Total deposit under identical spraying conditions yielded only 99 micrograms of arsenic oxide per square inch.



There is no substitute for KILLING POWER when Codling Moth attacks. And only a hard-hitting, two-fisted Arsenate of Lead can stop codling moth larvae. Before you experiment, remember—it costs no more to use S-W Arsenate of Lead. It costs no more to have its 50% increased deposit unhindered by deflocculators or astringents.

DON'T ACCEPT ANY SUBSTITUTE FOR KILLING POWER!

Codling Moth Control Service is Yours—FREE! This new, practical plan tells you how and when to spray your apples; offers definite, helpful information on trapping codling moths and banding trees to catch the worms. This service is yours without charge . . . Write

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Insecticide Department
101 Prospect Ave. Cleveland, Ohio

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SPRAY AND DUST MATERIALS

IDEAL ORCHARD POWER

The MODEL "UO" AIR-TIRED TRACTOR

A FULL THREE PLOW TRACTOR equipped with big, efficient **LOW PRESSURE AIR TIRES ... FOUR SPEEDS,** with high speed of 15 miles per hour . . . **WORKS ANYWHERE,** in the field, on country roads or city streets, in buildings . . . **LOW, COMPACT, PROTECTED** . . . soft air tires **WILL NOT INJURE ROOTS.**

Orchard and vineyard owners praise this sturdy, powerful, easy riding tractor, and especially the price. Your name and address on the margin of this ad will bring full information. Address Dept. 16C.

No. 143 . . . 3-Bottom A-C Orchard Plow—Compact, low-built.

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Why WORRY ABOUT RESIDUE?

The Successor to Lead Arsenate is HERE

Send for your copy of our new bulletin on the Residue Problem and its solution giving official tests and other information showing why KALO SPRAY is more efficient, safer and more economical for codling moth, curculio—most chewing insects. Get your control and residue worries off your mind now.

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THE KALO COMPANY
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Please send me your FREE bulletin "Solving the Residue Problem".

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PROGRESS IN FRUIT MACHINERY

By JOHN T. BREGGER

ORCHARDING like other agricultural and non-agricultural industries has moved forward with the age of machinery. Within the last 50 years, however, the growing, harvesting and merchandising of fruit has been taking more and more mechanical equipment. Only a few jobs such as pruning and picking are still entirely hand operations.

One might classify fruit machinery into four major groups: Cultural, spraying, packing house equipment, and transportation machinery. Most of these have changed very notably, if not having originated, during the last 50 years.

The machinery of cultivation, including the plow, disc and various kinds of harrows, has changed little, except in size and source of power. The principle of operation is in some cases centuries old. Modifications have allowed for riding, for getting closer to the trees, and so on. The first riding orchard cultivator appeared about 1890, being designed for soil preparation for intercrops in both orchard and vineyard. More recent improvements in orchard cultivation tools since the introduction of the off-set disc, is the off-set plow and the giant spring-tooth harrow or "weed-hog." Such cultivation machinery takes into consideration the most recent trends in confining deep cultivation, if practiced at all, to only a short period in early spring, with subsequent soil treatments confined largely to only a slight destruction of the ground cover and the production of a loose surface condition which will hold a maximum of rainfall.

Spray machinery was in existence 50 years ago, but the back, bucket, and barrel pumps of those days were powered "by hand." In 1886 the details were worked out for the first power sprayer on which the pump was driven by a sprocket chain from the axle of the spray cart wheel. The big forward strides were made, however, after the introduction of the gasoline engine. This era began in the late nineties. Since that time spray machines have been improving almost yearly from the standpoint of size, capacity, length of efficient service, working pressures, and flexibility of use. Pressure regulation began in 1910, one of the greatest single developments in the history of the power sprayer. While the spray machine of 20 years ago might develop a 200 pounds working pressure with a capacity of five gallons per minute with two nozzles, the typical machines of today are capable of developing working pressures of 400 pounds and up, and of throwing five gallons of liquid per minute from a single gun. Compared on a unit basis (one gallon per minute at 100 pounds pressure), the cost of this modern and improved machinery is significantly lower than the older models.

Nozzles have been improved from the standpoint of efficiency and effectiveness, as well as keeping up with the increased pressures and capacities of the sprayer. Rods have been discarded and have reappeared many times with such new developments as the modern spray "broom," but the "spray gun," manufactured with as many as four nozzles, is still the most universally popular type.

Stationary spraying systems were

(Continued on page 30)

The rubber tired tractor is ideal for orchard and vineyard.

STATE HORTICULTURAL NEWS

Fifty Years of Arkansas Fruit Growing

THE history of Arkansas fruit growing for the past 50 years is necessarily an account from the very beginning.

Apple production is very largely confined to the two northwest counties—Washington and Benton. Federal soldiers of the Civil War period took home stories regarding the excellence of northwest Arkansas apples and when several years after the coming of peace, two ribbons of steel were pushed across the Ozark uplift from north to south, commercial production of the "King of Fruits" began. In 1919, Arkansas was fourth state in the number of bearing apple trees but since those golden days we have suffered much. We do not despair.

Grapes, it might be said, came with the 20th century. A big event was the founding of the Italian settlement of Tontitown, in Washington County, during the winter of 1897. We ranked sixth in production in 1931.

In 1929 we were fourth state in strawberries grown. This industry came, like the apples, with the building of railroads and is located in various areas.

Peaches also came along with better transportation. At present the principal producing areas are—first, the Nashville district in the southwest; second, Clarksville with Johnson County in the west central; third, the famous Crowley Ridge section towards eastern Arkansas. We have ranked as high as second in production. In 1931 we were fifth.

THOMAS ROTHROCK, *Sec'y.*,
Springdale.

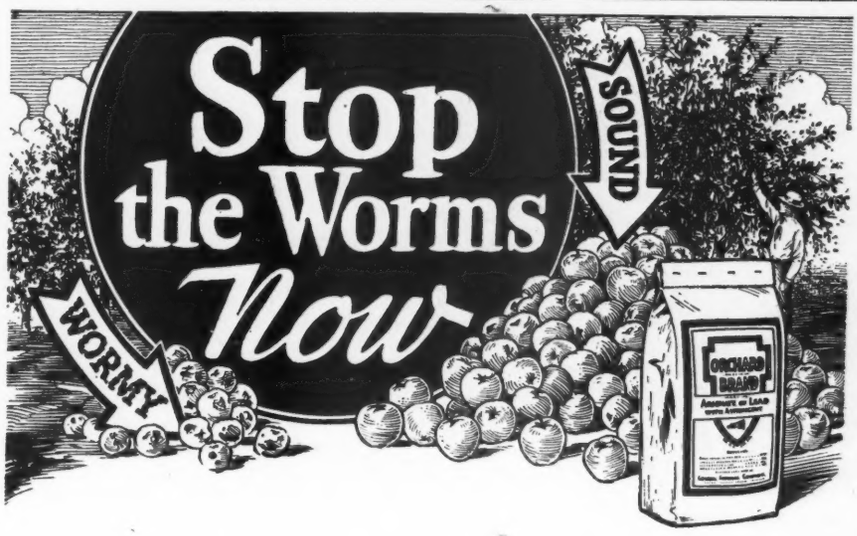
Maryland Horticultural History

THE early history of Maryland horticulture seems more romantic than our present production methods with their use of nitrogen fertilizers, pruning and thinning methods, and heavy spray schedules. Some of the older residents of the Eastern Shore tell us of the early days when almost a whole county seemed to be a large peach orchard. No spraying, no pruning, peach trees "as large as maple trees," and occasionally a few borers to be dug out of the trees. There was also a large area devoted to dewberries, and then the Kieffer pear came into rather extensive production. Peaches were shipped out by boatloads, moving in baskets or boxes, and little grading was necessary. Baltimore canneries used a great part of the crop, and in short seasons even imported peaches from Connecticut and Ohio. But when diseases and insects, especially brown rot, San Jose scale and yellows, swept the country, all of this old order was changed, so that now some of the former fruit sections have not a single commercial orchard in them.

There has always been a heavy production of strawberries on the Eastern Shore. Quite a few of the older strawberry varieties developed and flourished in that section years ago. A region of raspberry production has developed along the west side of South Mountain, on whose slopes our grandfathers scampered during the skirmishes of the Civil War.

The Maryland State Horticultural Society held its first meeting in Baltimore on December 14 and 15, 1898. It seems strange to read the titles of some of the papers and to find such topics as the future of the Kieffer pear and the possibilities of the Blue Ridge section as an apple growing region. This is now the Cumberland-Shenandoah apple section. It is equally interesting to find papers on the export situation, pollination studies of the Kieffer pear, the problem of boat and rail rates on fruits and vegetables, Bordeaux-oil paint for pruning wounds, and by 1900 the Society had speakers discuss thinning, grading, tillage and fertilization of fruits and vegetables. Evidently our modern programs are not so new.

Among the speakers we find such men as J. H. Hale, M. B. Waite, L. H. Bailey, W. A. Taylor, C. P. Close, J. S. Harris, Richard Vincent, H. E. Van Deman, Orlando Harrison, L. P. Miller, H. P. Gould, E. P. Cohill, F. A. Waugh, W. F. Allen, H. W. Miller, J. B. S. Norton, L. C. Corbett, A. L. Quaintance, and many others. These men have left their mark on the development of many phases of horticulture. An active horticulturist of



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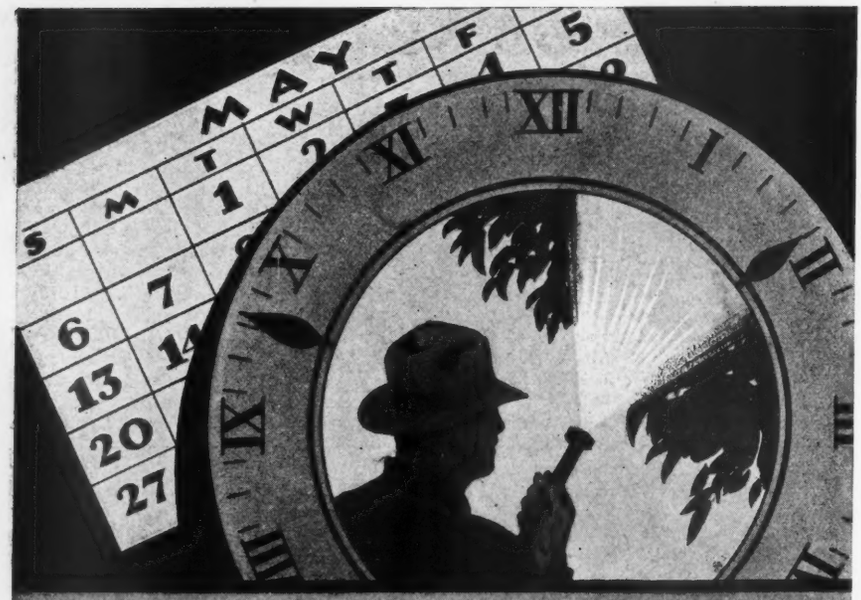

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those times was J. W. Kerr of Denton, Md. Mr. Kerr was an authority on plums, and at his nursery, F. W. Waugh obtained much valuable information in plum nomenclature. Mr. Kerr was the first nurseryman to introduce the Stayman Winesap apple in 1894, after careful trials of this variety in his orchard and nursery.

The succeeding years brought their discussions of new developments in culture, spraying and marketing, and the old arguments of the merits of various fertilizer materials and the question of whether we wanted to grow wood or fruit in the orchard. The benefits of soil humus were recognized at that time. It is interesting to note that Governor Woodrow Wilson of New Jersey addressed the Society in 1911.

Later discussions concerned the dreaded cedar rust, and then there came such topics as soil erosion, reforestation, lessons to be learned from western fruit growers, and the development of co-operative marketing.

And so the phases of the horticultural industry have gone on, and we have some fine examples of men who met problems and disaster from diseases and insects that seemed beyond control. These men have left us an example to follow, and we hope that when our present records are searched by the next generation of fruit growers, they will find the same courage, persistence and successful solution as we have found in the early records of these founders of the horticultural industry.

A. F. VIERHELLER, *Sec'y*,
College Park.

FIFTY YEARS OF CODLING MOTH

HAS any one a *Remedy* for the *Codling Moth?* This question was asked 50 years ago this winter at the annual meeting of the Indiana Horticultural Society.

Mr. Pondexter, a fruit grower at Bartel, Ind., observed that codling moths spun their cocoons in apple picking crates stacked against his barn and that the moth was easily destroyed at that time. Today, volumes are written on codling moth control, while the screening of packing sheds and destroying larva are considered very important.

Another gentleman discussed the uses of tobacco, soap, hellebore, arsenic, pyrethrum and kerosene as insecticides. He also mentioned an instrument for applying solutions. Fifty years later the instrument for applying solutions has developed into a machine capable of delivering many gallons per minute, but tobacco, soap, arsenic and pyrethrum in some form are being tried out as controls for the same codling moth.

The Purdue Agricultural Experiment Station co-operating with the U. S. D. A. recently announced an experiment using electric lights to attract codling moths. It has been found that the female moth is more readily attracted by ultra violet rays. Electric light bulbs furnishing these rays can be had at $6 or $8 apiece. Previous experiments indicate that ultra violet rays may have their place in codling moth control but it is nothing new. Mr. J. O. Green, 50 years ago, spoke of attracting moths to bonfires where they could be destroyed, but reported that ultra violet rays would be more attractive. As he had never heard of ultra violet rays he called it ordinary daylight.

Peach thinning bulletins can be had for the asking. After much experimenting

it has been proved that the pit of a peach is a drain upon the plant foods and that by thinning before the pit has started to harden this extra plant food can be used by those fruits left on the trees. Peaches should be thinned to four or six inches, a branch 12 inches long can mature two or three peaches. Here is what Mr. Smith of Iona, Mich., observed 50 years ago: "He would thin to two or three and increase the amount of flesh on these; it was the formation of the pit that exhausted the tree, and the number of pits should be reduced to the lowest number with a good yield of fruit. He would thin before the pit begins to harden."

In reading horticultural literature of 50 years ago we find that many present-day fruit practices were in use. Those old fellows knew the "wherefores" even if they didn't know the "whys."

Professor James Troop, President of the Indiana Horticultural Society last year, Professor W. C. Latta, Purdue Agricultural Experiment Station, and D. B. Johnson, an active fruit grower at Mooresville, Ind., have seen our State develop horticulturally for 50 years. They can remember when the Society recommended 93 varieties of apples, 25 varieties of pears, and an equal number of peaches. They have seen many of these old varieties replaced by newer ones, but the things they knew and did then are making conditions easier for the present-day fruit grower.

K. I. FAWCETT, *Sec'y*,
Lafayette.

N. Y. STATE HORT SOCIETY

S. L. Salisbury, Phelps, *Pres.*
Roy P. McPherson, LeRoy, *Sec'y*

AS CANDIDATES for 50-year membership in AMERICAN FRUIT GROWER'S honor roll, the New York State Horticultural Society nominates George W. Dunn of Webster and B. J. Case of Sodus. There may be others who deserve the honor, but incompleteness of early records makes it difficult to name them. J. R. Cornell of Newburg is one of the veterans who will be eligible in a few years. David J. Bell of Rochester, who died a year ago, claimed to have been a member for about 65 years, 10 years longer than Mr. Dunn.

Next winter at its Rochester meeting the society will observe its 80th anniversary. While plans have not yet been made, it is hoped at that time to assemble as many as possible of the "old-timers" and to review some of the progress of fruit growing in New York State. Inception and development of the present great horticultural industry in New York is bound up largely with the history of the society.

In 1855 Patrick Barry, George Ellwanger and a group of men who had become deeply interested in the possibilities of horticulture met in Rochester to form the Western New York Horticultural Society. Later this was known as the State society and again reverted to the Western New York title. In 1900 the New York State Fruit Growers' Association was formed. In 1918 the two organizations meeting in Rochester merged and again the name of New York State Horticultural Society was adopted. This name has continued in use.

The society is the parent of practically all horticultural, nursery and vegetable societies in the State. As the nursery groups, floral and ornamental horticultural interests, vegetable growers, etc., developed specialized interests they branched off into separate units until today the Horticultural Society devotes all of its activities to fruit. Dr. U. P. Hedrick, elected president of the merged society in 1918, is now director of the New York State Agricultural Experiment Station at Geneva.

Fifty Years of Variety Testing

THE fruit industry in Minnesota dates back to 1843 when G. H. Pond, a missionary, planted some apple seeds collected in Connecticut. The outstanding achievement of the pioneer period was the production of the Wealthy apple about 1861 by Peter M. Gideon, from seed probably obtained in Illinois.

The past 50 years have seen a tremendous change in the development of fruit growing in this State. Countless thousands of seedling varieties have been grown, tested and discarded. Varieties like Jonathan and Delicious, which in earlier days it was thought folly to plant, are being grown successfully on a commercial scale in the more favored sections of the State. Fruit growing in Minnesota is steadily changing from mixed home

Congratulations, AMERICAN FRUIT GROWER!
We Celebrated OUR Golden Jubilee in 1932

When American Fruit Grower was born, 50 years ago, early types of OSPRAYMO Sprayers were already in service. This concern, now in its 53rd year, is probably the oldest exclusive manufacturer of sprayers in the world, certainly in the United States.

Distinctive OSPRAYMO Features You'll Like

Automatic Pressure Regulator and over-size Air Chamber maintain uniform pressure under varying conditions.
Pump Plungers of Stainless Steel.
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Write for FREE CATALOG Orchardists, potato growers and market gardeners should write for our illustrated Catalog of Orchard and Field Sprayers. Do it now—before you forget.

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Tours to five prize orchards in 1933 revealed four makes of sprayers, but Hamilton Guns were used in all cases!
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Hose always straight, cannot kink, Ease in operation of spray gun, will pay for swivel the first day's use. Fits any spray gun, or broom. Will not leak under highest pressure. *Postpaid* $1.15
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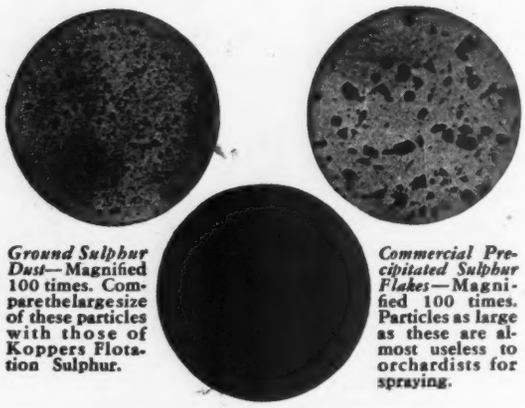

Ground Sulphur Dust—Magnified 100 times. Compare the large size of these particles with those of Koppers Flotation Sulphur.

Commercial Precipitated Sulphur Flakes—Magnified 100 times. Particles as large as these are almost useless to orchardists for spraying.

Koppers Flotation Sulphur—(Paste and Dry Wettable) Magnified 100 times. Notice that the particles are many times smaller than those in ordinary sulphurs.

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1. Surer, Safer Protection
2. Maximum Coverage with Minimum Amount of Spray
3. Better adherence to foliage and fruit
4. More uniform deposit
5. Does not mar or blotch matured fruit
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and commercial plantings to a distinctly commercial type of planting, in addition to an extensive development in home garden culture. This transitional period is accompanied by a marked reduction in the number of varieties planted.

The University of Minnesota Fruit Breeding Farm has played an important part in this development. The first fruit distributed from this institution was the Latham raspberry, which has won national recognition as a leading commercial variety. The site of the present 227-acre establishment was acquired in 1907, although the first fruit breeding farm in Minnesota began operation in 1878. The past two decades have been marked by an extensive development in red raspberry production, stimulated largely by the introduction of the Latham variety.

J. D. WINTER, *Sec'y*,
St. Paul.

M.F.G.A. MASSACHUSETTS NOTES

THERE have been in Massachusetts, as in all the other orcharding sections of the United States, some very remarkable changes in the past 50 years. To catalog only a few of them we might mention the following:

1. Fifty years ago there were no orchards of any size in the State; an orchard of 10 acres would have been a wonder. Today we have a number of orchards of 100 acres or more, while 25 and 50-acre orchards are quite common.

2. Fifty years ago the McIntosh was *absolutely unknown* in the State, while today it leads all other varieties by a wide margin, is the standard of excellence for apples, and is the variety on which Massachusetts has built an enviable reputation for quality fruit.

3. Fifty years ago the codling moth was about our only major pest and we fought it, *if at all*, with a little hand pump that *might* give a pressure of 50 pounds, while today we have railroad worm, curculio, scab, San Jose scale, gypsy moth, red mite, oriental fruit moth and many others (with new candidates almost every year) *but* our equipment and methods have more than kept pace with our troubles, the spray outfit that cannot develop 200 pounds pressure is a back number, and our fruit is far more free from blemishes than it used to be.

4. Fifty years ago the barrel was our only commercial package, and even that was used on only a small per cent of the crop, most of the fruit—ungraded, unsprayed, and unpacked—was hauled into the local market in any sort of box or basket that could be found. Today the bushel box, basket and crate are the principal packages, with many other types used more or less and always *new "gift"* packages are used.

5. Fifty years ago Massachusetts was nowhere in particular as an orchard State, while in 1933 it ranked seventh among all the states of the Union in the size of its commercial apple crop. What may not the next 50 years do for us?

F. C. SEARS,
Amherst.

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That's New York!

THE PAST 50 YEARS THRU THE PAGES OF A. F. G.

(Continued from page 12)

one magazine. In going over the pages of past issues, one immediately sees names which have gone down in history for all time. There were Marshall P. Wilder, A. J. Downing, S. A. Beach, Luther Burbank, G. Harold Powell, J. H. Hale, Roland Morrill, W. J. Green, George T. Powell, F. T. Sweet, and many others. A good many of our older horticultural leaders who write for AMERICAN FRUIT GROWER have contributed in the issues of long ago. These men have made fruit growing history. Many of them wrote from their own first-hand experience in commercial orchards, as well as that gained from research in the laboratory and small experimental plantings.

Scientific Men Enter Picture

The change in authorship of fruit growing articles and even in speakers at horticultural meetings is probably one of the greatest changes which took place between the period of 50 years ago and the period of five or 10 years later. In 1884 fruit growers had no assistance from scientific men. There were no government or state experiment stations and "men of science had not done much in the way of investigation in the interest of fruit culture." Annual state horticultural meetings attracted horticulturists from outside states, among these men being Patrick Barry, Charles Downing, John A. Warder, John J. Thomas, and others who gave the results of their practical experience. Even young members of these societies had opportunity to give their testimony in regard to experience with new fruits and different methods of culture. By 1890, however, these A B C discussions of varieties, culture, and personal experiences became outgrown and every well informed fruit grower was expected to know about these simpler matters. Since 1890 the "men of science" have monopolized the attention of these meetings to a large extent, and, as an editorial of 1891 expresses, "not because they urged their services upon us but because we desire that they should teach us. Indeed the new member hardly dares express himself now on any point upon which a scientific opinion is desired." The same editorial adds, however, that "horticultural societies may go too far in the way of scientific feasts at their annual gatherings. It would probably be about right to have the meeting composed partly of science and partly of practical material."

The period of a quarter century ago was a great era in American orcharding. Western land was being boomed by real estate agents. The growers themselves were their biggest advertisers, which was to bring them in later years a situation they could not solve in a day. Apple shows were gigantic affairs, aimed at casting the spell of success over the land. One Northwest show, held at Spokane, attracted fruit growers as well as buyers from all over America, recorded over 102,000 paid admissions besides 4000 season tickets. A Wenatchee grower winning first prize on a carload of apples netted $7000 for the 630 boxes. Orchards planted on frosty sites were being protected in some cases by orchard heating, considered a cheap practice during four consecutive years of good prices. And while the West was becoming a fruit country, the East was again planting, in the most favorable areas, the or-

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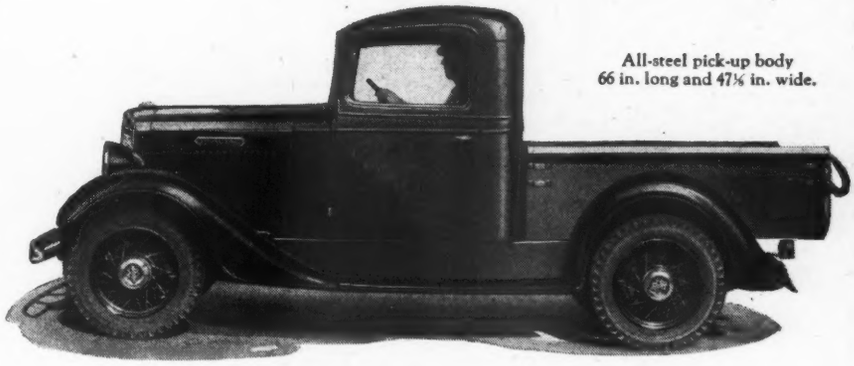

All-steel pick-up body
66 in. long and 47⅛ in. wide.

International Harvester announces a thoroughly modern and beautiful Half-Ton Truck, the Six-Cylinder Model C-1—a sturdy truck that is *all* truck, with chassis and engine built for *truck* performance, like every International.

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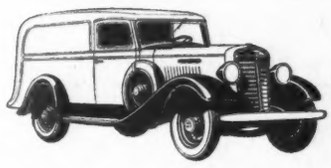
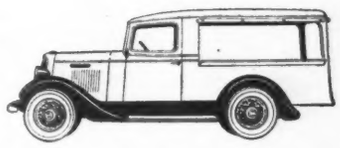
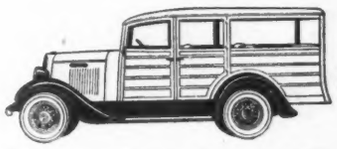
If you have any kind of light hauling to do, don't fail to see and drive this truck and give it a thorough going over. Its inherent *International* mechanical quality, its utility and operating economy, its comfortable riding and fine appearance will please you year after year. You will find this absolutely the best value in the low-price field. Ask an International branch or dealer to bring it to you for a demonstration.



The Half-Ton International with 6-ft. panel body on 113-in. wheelbase. Roomy 7-ft. body on 125-in. wheelbase also provided. Inside height, both bodies, 52 in.



Canopy-top express body on the new Half-Ton International.



Station-wagon body on the new Half-Ton International.

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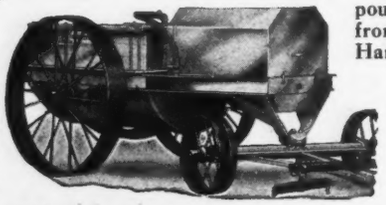

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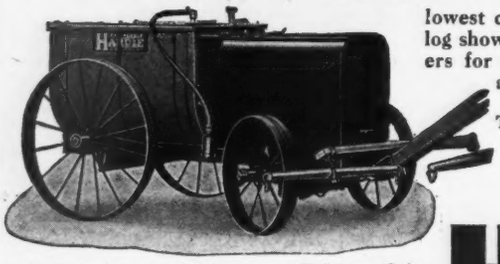

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You can get no finer coffee flavor in the cup than is in the coffee you buy. But there is one coffee you can always depend upon to be "always" delicious, "always" rich and mellow and sparklingly fresh. That coffee is Beech-Nut. For Beech-Nut is finest mountain-grown coffee, scientifically blended and roasted — then protected by modern high-vacuum tins.

Beech-Nut Coffee

Rare Flavor from Tropic Heights

chards which are today among the most profitable in the land.

The old saying that there is nothing new in the world is well brought out by a careful perusal of AMERICAN FRUIT GROWER pages over a long period of years. Many of the so-called "new truths" of today were expounded in the meetings of fruit growers at an early day and were written into the timely hints of the magazines of that day. We find, therefore, in the issues between 25 and 50 years ago the emphasis on valuable orchard practices of which the most interesting are listed:

"Don't harbor a tree that bears undesirable fruit—graft it. Even the boys and the ladies can learn the grafting operation."

"Learn how to prune the various kinds of trees by visiting other fruit growers who make a specialty of those particular varieties."

"Aim to be an expert in *controlling insects* by becoming well informed on these matters."

"Small apples keep the best so that the large sizes should not be held too long in common storage."

"Much depends upon the man!"

There are very few of our recommended practices of today which were not known and advised by at least some of the most far-seeing orchardists between 25 and 50 years ago. The thinning of fruit was emphasized as a commercial practice as far back as 1901 and 1902, and yet we are still talking about it today with an emphasis which accepts only partial adoption of the practice. Spraying was considered an art 30 years ago, but four rules laid down at that time are as scientifically sound today as any new rules which we can make. Here they are:

1. "Use materials known to be best.
2. "Keep the pumps and nozzles in perfect order.
3. "Spray thoroughly or not at all.
4. "Know why you spray and do it in season."

Not all recommendations contained in the old issues of AMERICAN FRUIT GROWER would be given the same degree of emphasis today, and a few of them would actually be thrown out as poor practice. For instance, much was said about the necessity for knowing the variety names of fruit 50 years ago. Today the commercial grower may only have a dozen kinds of fruit in his entire orchard and no emphasis need be placed on the knowledge of a great many varieties. One early issue states, "The great commercial apple is the Ben Davis" which, of course, we do not admit today. A model peach orchard was suggested in which the trees were set 12 feet apart and maintained eight feet in height by heavy pruning. The practice of heavy pruning has long since been discouraged, and particularly the dehorning of fruit trees which was so common about the beginning of the century.

Long-Winded Debates

There were some heated discussions in those old days. As far back as 1888 may be found the beginning of that perennial argument as to the preference between grafted and budded trees; and it is not settled yet. Later a local war took place over the identity or non-identity of Black Ben and Gano. With the initiation of the spray calendar some 30 years ago, there began a series of spray material controversies, one of the more picturesque examples being the Lime-sulphur Vs. Scalecide debate whose reverberations have lasted "far on

(Continued on page 25)

FEDERAL FRUIT WORK THROUGH THE YEARS

(Continued from page 9)

Not least among the services which scientific research in the Bureau has rendered to the fruit industry is the discovery by Waite (1891-93), while noticing the insect distribution of pear blight, of the fundamental fact that most of our apple and pear varieties are partially or wholly sterile to their own pollen and therefore require inter-planting with other varieties to assure normal setting of crops. Broadened work by others based on this discovery has demonstrated that the same principle applies to grapes, plums, cherries, and in fact to most of the clonal varieties of the fruits and nuts which constitute the bulk of our deciduous fruit industry. This work has so profoundly and radically changed orchard planting practice and the attitude of fruit growers toward the honey bee that few commercial orchards in the United States under 30 years of age now exist east of the Rocky Mountains in which definitely selected cross-pollinizing varieties are not included. The phenological and varietal adaptation studies by Gould have also played an important part in determining the varietal composition of our deciduous fruit orchards.

"Power" sprayer of 1886

Of far reaching importance to the fruit industry have been the performance record studies of citrus fruit varieties by Shamel and associates, begun in 1908, which have established beyond question the fact of frequent occurrence of perpetuable bud sports of some of the leading varieties of oranges, grapefruit and lemons. This has made clear the necessity of meticulous care in selecting budwood for propagation if destructive varietal deterioration of stock in commercial nurseries and orchards is to be avoided. Although viewed with scepticism at the start by many investigators the ocular and statistical proof of the correctness of the previous observations upon which the work was based proved so convincing that Shamel's conclusions were promptly accepted and acted upon by the industry. As a result the varietal character of the commercial citrus plantings in the Southwest and to a considerable extent those in the Gulf region, has been largely purified and stabilized upon a basis of more regular and dependable yields of fruit of more uniformly high grade and quality. This work has recently been extended to cover deciduous fruits, particularly apples, pears, peaches, plums and other tree fruits.

Numerous promising fruit varieties have been introduced from foreign countries by the Bureau, under the leadership of Fairchild and Ryerson, of which those of the date by Swingle and others from Algeria, Morocco, Egypt and Iraq have resulted in the establishment of a thriving and growing new industry in the hot valleys of the Southwest, the annual production of which now approximates a value of $500,000. Others which are gradually finding places in commercial production are the Panariti grape, obtained in Greece by Fairchild, from which the so-called dried "currants" of commerce are made, the Meyer

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We are glad to work side by side with this excellent publication in the service of America's fruit growers.

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FOR YOUR TREES

Also producers of Blue Sunoco Motor Fuel

lemon, Tamopan persimmon and several varieties of zizyphus obtained in China by the late F. N. Meyer; several varieties of oriental persimmons from China and Japan by Dorsett; numerous varieties and forms of citrus from China and Japan obtained by Swingle and others; phylloxera resistant grape stocks, secured in France and thoroughly tested by Husmann, numerous varieties of avocadoes from tropical America by Wilson Popenoe; Quetta nectarine from India by Fairchild; a large number of varieties and forms of blight resistant oriental chestnuts from China, Korea and Japan secured by R. Kent Beattie, and many other fruit varieties and species which promise usefulness in the rapidly expanding breeding work of the Bureau and the state experiment stations.

Extensive fruit breeding work, under way in the Bureau for a number of years, has resulted in many promising varieties. Blight resistant pears were developed by Waite, canker resistant citrus by Swingle, peaches and apricots for canning and drying by Wight, early apples by Close, muscadine grapes by Dearing, vinifera grapes by Snyder, almonds by Wood, pecans by Reed and Lake, are undergoing the long-time tests required to determine behavior and value.

A number of citrus hybrids between tangerine and grapefruit made by Swingle, Webber and associates which gave rise to the tangelo group are increasing in commercial scale production in Florida and California, such as Sampson, Thornton, and Williams, while others of much promise, including Seminole, Umatilla and others, are under test, as are other citrus hybrids, such as the Perrine lemon-lime, a very promising disease resistant, cold enduring ade fruit.

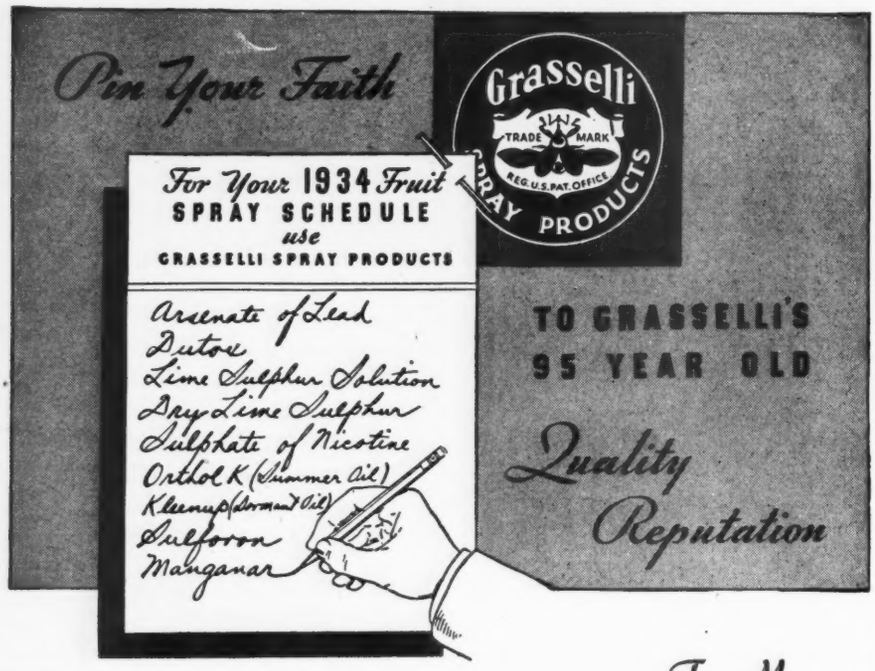
The small fruit breeding work of Darrow and Waldo has resulted in the now extensively grown Blakemore strawberry and the newly disseminated Bellmar, Southland, Redheart, Dorsett, Fairfax and Narcissa varieties. The Brainerd blackberry, Potomac raspberry and Glendale gooseberry have also been introduced. Work in this as well as in other fields has been facilitated by the epoch-marking length of day discoveries of Garner and Allard.

The blueberry work of Coville, who pioneered the acid soil crop research which has opened a rapidly broadening and attractive horticultural vista, has resulted in the breeding of 12 varieties already named and disseminated, of which June, Cabot, Rancocas, Pioneer and Concord are already commercially established.

Research on biological and physical problems relating to fruit has not been restricted to those encountered before the harvesting of the product. It has followed the product through the handling, transportation and storage phases and in some instances into the field of commercial utilization, such as involve the determination of varietal suitability for canning, drying, juicing, freezing and otherwise preserving for later use, as illustrated in the work of Caldwell, Magoon, Diehl, Lutz and associates.

Initially the work in the transportation and storage field developed as a result of observations by the writer of the discordant and uninterpretable behavior of refrigerated fruit exhibits of the crops of 1899 and 1900 for the Paris Exposition of 1900, the primary objective of which was the stabilization and enlargement of our exports of these perishables. Systematic prosecution of the studies began simultaneously with the organization of the Bureau and developed progressively through the leadership and teamwork of Powell, Stubenrauch, Eustace, Tenny, Ramsey, Corbett, Mann, Hawkins, Auchter, Fisher and associates, with numerous results beneficial to producers, carriers and consumers alike. Through carefully conducted experimentation, usually involving the handling of commercial quantities and frequently of train loads of contrasted products, much light has been thrown on the causes of deterioration of fruits in storage and transit, while methods have been developed for preventing such deterioration.

The importance of careful handling of citrus fruits for long distance transportation and the advisability of precooling these and the more perishable fruits were promptly established; a portable car precooler now extensively used in the South and in California has been developed; the general harvesting and handling practice with apples for storage has been radically modified and improved. Through experimental determination of the essential ice consumption in transit for citrus fruits from California, an annual saving of $1,000,000 to the growers through reduction in refrigeration rates recently has been accomplished. Precooling and transportation investigations with Bartlett pears from the Pacific Northwest to the East, have demonstrated the practicability of a like annual saving on the movement of that fruit. The devising and perfecting of the "trickle system" of ethylene gas treatment to bring out the normal color of physiologically mature citrus fruits by Winston and associates has materially reduced the time requirement and the decay hazard in this commercially important practice. Leadership by Fisher, Magness, Edwin Smith and associates in the intensive development of spray residue fruit cleansing methods made necessary to remove excessive insecticidal spray residue has been highly important to the industry in recent years.



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KOPPERS FLOTATION SULPHUR has been added to our line of Spray Products. It is the safe, sure and efficient fungicide—with better adherence—does not mar or blotch fruit—sprays easily—and gives finer finish.

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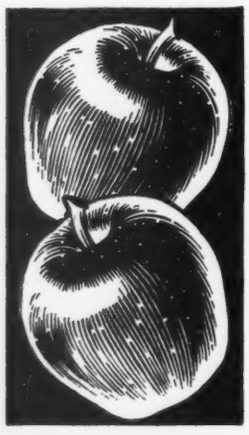

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A Standard Held High for 95 Years

THE PAST 50 YEARS THRU THE PAGES OF A. F. G.

(Continued from page 22)

into the night" and even unto the present day.

A most interesting statement brings out the fact that fruit growers of the previous generation were hurt considerably "by the two-legged pests who pass out crooked crop estimates, giving one set of figures for the apple grower and another for the apple buyer." Not all growers agree today that crop estimates are as reliable as they should be but at least there is, under the government crop reporting service, no reason to give out false reports. What happens to them, however, from a standpoint of misinterpretation and misuse is another matter.

At the time when fruit exports to foreign countries were beginning to astonish even the most doubtful, and to boost the farm and domestic price of fruits in America, even higher visions of future prosperity were seen. People little realized in how short a space of time this new market could be choked and largely shut off by the retaliatory tariffs and quotas which are common today. Fruit growers have always been hopeful of the future. If it is not born in them, they gradually acquire this point of view through the year after year battles with the climate, weather and the many enemies which attack their fruit even before they face the problem of selling it. It is only when conditions become too favorable that people make the biggest mistakes.

Competition Between Regions

Throughout the past 50 years there have been eras of competition between the various fruit sections. This naturally began with the westward and southern movement of fruit plantings. When commercial orchards were planted on the cheaper lands of the South, the rich lands of the Middle West and Ozark region and in the high yielding locations of the Northwest, competition had to be the result. Just 25 years ago last month, however, J. H. Hale, the famous peach grower of Connecticut, reported at the Western New York Horticultural Society meeting: "Do not be afraid of the competition of the Pacific Coast or any other competition. There is one thing to give you courage in the East. There apple trees live and produce for a hundred years, whereas in the West apple trees after bearing a few fine crops, perish, being short-lived. It is said that 20 years is the average life of an apple tree in the West."

The East continues to raise apples in spite of this predicted competition, but not for the reason which J. H. Hale prophesied. Some other competitive regions have not been able to withstand the competition of the East with its nearby markets, but there exists a new set of survival factors from those which existed in 1909. The Middle West and Ozark regions, which were once shipping by the carload some of the finest fruit seen, were finally hit by the same problems which had given the northern growers their setback. Between the East and the Pacific Coast, however, the competition finally became more balanced, the final outcome of which will depend upon whether large regular crops far from market can be sold more profitably than less regular crops near the markets. This competition of regions may be answered with another statement published in the FRUIT GROWER of 1909 under the title: "Shall We Go West?" The editorial reasons: "Is there any one locality in this great and glorious country which entirely surpasses all other localities for fruit growing? My answer is 'No.' As a whole, America is a great fruit growing region. Its capacity for fruit growing has been under-estimated. Some parts of our country are more favorable for one class of fruits, but other localities are more favorable for other kinds. Therefore let us be content to allow each locality either north, south or west to retain its enviable reputation for fruit growing without attempting to decide which locality is best of all."

Transportation problems were discussed almost as far back in the pages of the FRUIT GROWER as one can search. As we find it today, the railroads were always the "big bad wolf" of the fruit industry. In 1900 a Mr. Greiner reports his personal experience in hauling apples 20 miles to the Buffalo (New York) market by spring wagons, 14 and 18 barrels to the load. In comparison with shipping by railroad freight, he claims a saving of $3.50 to $4.50 per trip, but adds that not all growers can do this because of greater distance from market. In 1905 an editorial refers to the "private car monopoly" in the matter of refrigerator service. In 1909 we find a shipper in the Northwest was awarded $21,588 against the N. P. Ry. as a result of "delay in supplying cars." Even more severe criticisms against the railroads can be found in abundant editorials on the matter of high transportation rates and an unwillingness to lower charges not only to the level of the spring wagon of yesterday, but to the motor truck of today.

Discussion of marketing also goes back

SUMMER SCALECIDE increases codling moth kill

It may be used immediately before or after Lime Sulfur

It may be brushed off at picking time — it does not gum up fruit

Costs less than any other oil spray

FOR SUMMER-OIL LEAD

Summer Scalecide spreads arsenate of lead in an even film that gives better coverage and more complete control.

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Summer Scalecide prolongs the effectiveness of nicotine—and is a superior activator.

It may be used immediately before or after a lime sulfur spray without injury to the foliage, and combines readily with Sulfocide.

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Summer Scalecide not only more effectively increases the kill of codling moth, but holds down aphis, leaf hopper, red mite, case bearer, bag worm. And remember, Summer Scalecide will save you money, for this better oil spray is also the lowest-priced summer oil spray on the market. Our new circular, "Summer Scalecide," is just off the press. Send for your copy today.

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Get 75% less wormy fruit

Beta Naphthol Tree Bands kill the worms your spraying misses. From 50% to 80% of the worms on a tree will enter the bands; and practically every worm that enters them is killed. As many as 1300 dead worms have been found in a single band.

Wormy fruit losses have been cut 75% less than in neighboring orchards where only sprays were used. Yet Beta Naphthol tree banding costs only a few cents per tree.

American Cyanamid & Chemical Corporation does not make tree bands. But reputable manufacturers in practically every important apple section make tree bands impregnated with Beta Naphthol supplied by us. Recommended by U. S. Department of Agriculture and State Experiment Stations.

Consult your State Experiment Station about the size band recommended for your locality. Get started early to protect against codling moth nuisance.

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Beta Naphthol for TREE BANDS

through the last 50 years. The principles of good marketing have not changed much, although co-operative effort has in many regions replaced individual effort in locating profitable markets for the fruit grown. The first fruit co-operative was born in 1867, but only two were in operation 50 years ago. Since 1886, however, the number has increased more or less rapidly depending on business conditions until 1924, since which time the increase has been less rapid. In 1931, there were 1428 active fruit and vegetable co-operatives in the United States.

Probably the most significant phase of marketing is tied up with the methods of bringing the fruit into the market and the packages in which it is contained. Long ago is was brought out in the columns of AMERICAN FRUIT GROWER that superior pears should not be marketed in barrels. The past 50 years have seen the barrel come and almost go. The apple box made its appearance with western fruit growing and has held its prestige to the present moment. Modern trends, which have been discussed in recent issues of AMERICAN FRUIT GROWER, are even resulting in the bushel basket being limited to culinary varieties, while the gift crate and carton are holding the high quality sorts, except in the boxed apple regions. The marketing of more and more fruit in other than fresh form is gaining headway. An early issue of AMERICAN FRUIT GROWER will discuss this trend in a separate article.

Old time fruit growing was full of philosophy, much of which is still good, even though the science of our present day has relegated most of it to the background. The philosophical attitude of early fruit growers is well brought out in the columns of its representative magazine during its early years. Let us examine some of the advice which might come under the head of "Good Philosophy":

"Take time to walk over the farm and see what is needed to be done."

"The average farmer is a very stubborn creature. He does not take to new ideas very rapidly. It may be his misfortune, and I think it is, but it certainly opens the way for ambitious men who really have intelligence, and men who are willing to learn, to make something, to make some money for their old age."

"The man who may enter into the fruit business is the man who loves it, who will study it, the man who has not learned so much that he cannot learn any more and who is willing to keep up with the procession." (Roland Morrill—1900.)

"Never put off until tomorrow what you can do today unless it is the matter of borrowing money by placing a mortgage on your farm." Are there not some fruit growers today who wish they had listened to that bit of good philosophy?

Fruit Growing a Life Work

The fruit grower of yesterday was urged to live in his orchard and receive the best influence of this life work to the benefit of his home and family. Can we not well agree with a Mr. Reynolds who in the February issue of 1900 writes, "Every normal young man choosing a life pursuit must, we suppose, cherish the purpose of choosing a mate and founding a home and family. I know of no other condition so favorable for establishing a pleasant, profitable, elevating home and rearing of children as the country surrounded by orchards, gardens, trees, plants, vines, and flowers. Amid rural scenes in orchards, fields and woodlands, listening to nature's voice in association with domestic animals, the minds of childhood unfold much more

COD-O-CIDE TREE BANDS

(Standard throughout the U.S.)

Are double hot-dipped in uniformly high quality BETA NAPHTHOL and OIL mixture of full Government approved strength.

An average of 99.8% control secured by 13 State Experiment Stations, attests their high efficiency. Having incurred the major part of banding expense (scraping) why risk disappointment and loss when "COD-O-CIDE" TREE BANDS, efficient and reasonably priced, will more than pay for the small additional cost over that asked for poor ones?

Up to this time we are still Booking Orders at 1933 Prices as follows, despite higher manufacturing costs:

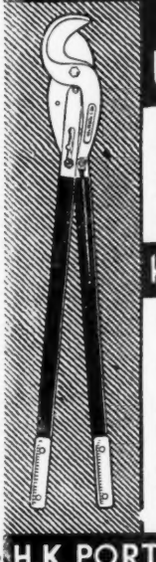
Single 2" x 250 ft. roll.....$5.00 ea.
Single 2-roll carton, 500 ft... 9.00 "
2 cartons (1,000 ft.) and up 7.50 "
10 cartons (5,000 ft.) and up 7.25 "
20 cartons (10,000 ft.) and up 7.00 "
40 cartons (20,000 ft.) and up 6.75 "

Special prices without package to near-by growers who can come to factory.

Advise promptly how many cartons we shall make for you for later timely shipment. Prices guaranteed only after orders are received and accepted. Terms f.o.b. Guernsey, Pa., cash prior to shipment or c.o.d.

EDWIN C. TYSON, sole distributor, Flora Dale, Pa. U.S.A.

The New 3 POWER CUTTING TOOL



A new idea in pruning tools ... large capacity, quick, clean cut and the power is in the tool. Patented slide shift gives amazing multiplication of cutting pressure. No strain on tool or operator. Can close up. No crushed wood. No stripped bark. Two sharp cutting blades. No dull hook.

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No. 1 Forester. 20" long cuts 1 3/16" greenwood..$4.25

No. 2 Forester. 27" long cuts 1 1/2" greenwood $5.00

For woods work, roadside clearing, brush cutting, we recommend the large Forester. Cuts close to the ground and leaves a flat stump.

No. 3 Forester. 34" long cuts 2" greenwood $7.00

H.K. PORTER, INC. EVERETT MASS.
★★★ The Bolt Clipper People

"The EARLY BIRD Tree Band Catches the Worms"

Treated with Beta Naphthol—Kills Codling Moth

Write for Prices

EDWIN H. HOUSE
MANUFACTURER
SAUGATUCK MICHIGAN

naturally than playing on the sidewalks and streets of the city. Fortunate are the children who develop under such natural and salutary influences."

Did the early copies of the magazine have anything for the ladies? Yes, the homemaker's page gave advice on fashions, food, and efficient home management. An article in 1907 was entitled, "How to Manage a Husband."

Any big stories reported through those 50 years? Yes, indeed! Twenty-seven years ago a Hood River apple grower received $12 for a box of Winter Banana which may still be an all-time record. Anything unusual? Kansas had at one time the largest apple orchard in the world.

And so on through 50 years of American orcharding, with AMERICAN FRUIT GROWER still attempting to serve the fruit grower and make his profession more profitable and pleasant!

Northern Nut Growers Will Hold 1934 Meeting in Michigan

THE Northern Nut Growers' Association held its twenty-fourth annual convention in Downingtown, Pa. This selection of a meeting place gave the members an opportunity to inspect the nut nurseries and several young commercial black walnut orchards in the vicinity. Southern Pennsylvania is the cradle of the northern nut industry. This infant industry has now left its cradle and is taking a few steps about the region of its birth.

The program included talks by L. K. Hostetter of Lancaster, Pa.; C. F. Hostetter of Bird-in-Hand, Pa., who has a thousand-tree orchard of named black walnuts, and Dr. F. L. Baum of Boyertown, Pa., who has a young orchard of 1200 trees. These orchards which are chiefly of the Thomas variety were visited by the association on its tour. The nursery of John W. Hershey of Downingtown was inspected, as was also the J. F. Jones Nurseries of Lancaster. At the latter place many large bearing trees of various nut varieties were seen. Of especial interest were the hybrids between the native hazel and various filbert varieties. These were fruiting heavily and seemed to be very promising nuts. One of the best has been named Buchanan, but there are others of considerable promise. Some of these hybrids may eventually play a prominent part in developing a filbert industry in the East.

Plans were made to hold the 1934 convention in Battle Creek, Mich., September 10 and 11. New officers elected were Frank H. Frey, Chicago, Ill., president; Dr. G. A. Zimmerman, Harrisburg, Pa., vice-president; Newton H. Russell, South Hadley, Mass., treasurer, and G. L. Slate, Geneva, N. Y., secretary.

GEORGE L. SLATE, *Sec'y.*

A new million dollar market has been opened in Portland, Ore., as one of the most important outlets on the Pacific Coast for fruits and nuts. Grades and varieties of every description are being featured in numerous specialty food shops and small independent stores. This mammoth market on which a million dollars has been spent, has a roof 616 feet long, contains 10 blocks of farmers' stalls, a sales force of almost a thousand, and more than 2000 electric lights.

"*Why don't* YOU *ask about this*

NEW CONTROL

for Scab, Codling Moth and other Pests?"

The ORTHO Summer Spray Program provides for almost every Pest and every combination of Pests.

● HERE is a new and better way to control pests, protect your crop, cut down the cull heap, and make more net profit at the end of the season.

The ORTHO Summer Spray Program is an *improved Scientific Program* that means dollars to every grower.

ORTHOL-K and Lead Arsenate with ORTHO Spreader provide the best known control for Codling Moth. ORTHOL-K kills the eggs, reduces "stings," and adds greatly to the effectiveness of the Lead. It's the *proven* Oil Spray for summer use.

ORTHOL-K combined with Nicotine Sulphate has proven remarkably effective, economical, and satisfactory as a substitute for Lead Arsenate in Codling Moth control. It is also an excellent summer clean-up spray for Red Mite, Scale, Leaf Hoppers, Case Bearers, and other insects. Besides, it ends the residue problem.

COPOSIL is the new colloidal copper fungicide for control of Scab, Brooks' Fruit Spot, Blotch, and similar diseases. Combines readily with ORTHOL-K and Lead Arsenate, Nicotine Sulphate, or Fluorine Compounds.

ORTHO SPREADER a distinctly better spray depositor for use with Arsenical, Sulphur-Arsenical, Lime Sulphur, Bordeaux, Coposil and other Copper Sprays, and with the Lead-Oil Combination. Gives even, more protective coverage, and aids residue removal.

Write for full information on the ORTHO *Summer Spray Program*

California Spray-Chemical Corp.
214-B West 14th Street, New York
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ORTHOL-K

AND LEAD ARSENATE
with ORTHO SPREADER
(and 'Coposil' for Scab and Brooks' Fruit Spot)

Stationary Spraying Gaining in West Virginia

UNTIL recent years spraying of orchards was done largely with portable sprayers differing in size, price, and cost of operation and maintenance. Use of the portable sprayer requires considerable labor and is limited to fairly level lands. Along with other eastern, southern, and western states the West Virginia station has developed the utility and economy of the stationary spray plant for large orchards, with the result that such equipment is now in rather wide practical use. It has the great advantage, orchardists say, of being adaptable to use in orchards where portable sprayers could be used only with the greatest difficulty or not at all. The West Virginia station has found that for large orchards the initial cost of the stationary system need be no greater than that of complete portable equipment. In addition the stationary equipment saves time, labor, and material, and enables prompt spraying when needed.

A study of 100 roadside markets, by the New York College of Agriculture, has shown that fifteen stands of New York highways where the passing traffic did not exceed 1,500 vehicles for one day in August, had an average annual sales of about $1,900; that twenty-two stands, where 2,000 to 3,000 vehicles passed in a day, did an annual business of $1,700 a year, and that stands where 5,000 vehicles passed in a day sold about $4,500 worth of produce a year.

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BABY CHICKS, HATCHING EGGS, BREEDING stock. All males used are from hens with records above 110 eggs. Egg average better than 24 ounces per doz. for pullet year. Munja Garden Poultry Farm & Hatchery, Bangor, Mich.

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SPECIAL PACKAGE BEES FOR POLLINATION. Nearest shipper to East. L. L. FEREBEE, Pineland, South Carolina.

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CUT FENCING COSTS 80%

Farms now using 110 volt alternating current save 80% with Electric One-Wire Fencing. Uses one strand of common barbed wire; one-quarter the ordinary number of posts; requires one-fifth the labor; no gates. Write—

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PEACH GRADER USED ONLY ONE SEASON. Price reasonable. JONESBORO HARDWARE COMPANY, Jonesboro, Arkansas.

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LADIES' — MEN'S — CHILDREN'S HOSIERY, $1.75 dozen. Guaranteed. Numerous other articles. New Catalog just out. If interested write for it. L. S. Sales Company, Asheboro, N. C.

ORCHARD MANAGEMENT

LET US SOLVE YOUR FRUIT FARM MANAGEMENT problems on a scientific basis, co-operating with AAA and Federal organizations. Write for booklet. NATIONAL FARM AND HERD MANAGEMENT, INC., 304 State Tower Building, Syracuse, New York.

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OLD AGE PENSION INFORMATION. ENCLOSE stamp. Judge Lehman, Humboldt, Kans.

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"EVERY GROWER'S" PAGE

By T. J. TALBERT

THE published transactions of our horticultural societies are in most instances a horticultural library in themselves. Their original papers, essays, and poetic quotations were not written to live "but a day." They will be read with interest as long as the nation exists. It should prove interesting and profitable to fruit growers today to read and study some of these early reports. Readers will note that many of the practices and methods suggested now for the growing of horticultural crops were considered and used in the early times; in fact, we are often led to ask the question, "What progress have we made in horticulture?"

"If we are able to found an Agricultural College in connection with the present $300,000 Missouri State University, I hope that pomology and horticulture may receive as much benefit from this institution as agriculture. They are intimately related and mutually dependent on one another. A horticultural department is imperatively demanded from our agricultural college fund."—Norman J. Coleman, January 8, 1867, first Secretary of Agriculture for the United States.

At the Eleventh Annual Meeting of the Missouri State Horticultural Society in 1870, the codling moth was discussed as follows: "The first brood may be caught by lights placed in dishes of water. A strong decoction of nicotine may be thrown into the trees to kill the moth. If an old cloth is placed in the crotch of the tree, the worm will crawl under this or between its folds to make its cocoon, when they may be destroyed. They will breed in the cellar where the apples are placed, under the barrel hoops and in other places. The hay band, recommended by Dr. Trimble, may be made of any fine hay twisted into a band and put around the trunk of the tree in three coils. This may be raised up from time to time and the cocoons destroyed. It is considered work, and we are apt to be lazy. Hogs are the best protection in the orchard. They eat up the fallen fruit and destroy the insects."

Apple Scab Control

Please advise me regarding better apple scab control. The foliage and fruit of my apple trees have suffered seriously for the past two years.—N. B. Ohio.

THE KEY to successful spraying against apple scab generally depends upon early, timely and thorough spraying before the true bloom. The problem is to keep the new leaf and blossom tissues covered with the protective fungicide.

When scab development is serious, two pre-blossom sprays are usually needed for control. In some of the northern apple producing states where scab is often more serious, three or four pre-blossom sprays may be required for protection.

The delayed dormant, pre-pink, and cluster-bud periods are all important times for sprays in scab control. Moreover, the calyx application may also prove to be an important scab spray.

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QUAKER STATE NEWS

THE Pennsylvania State Horticultural Association has endorsed to Senators Reed and Davis the action of the Executive Committee of the American Association of Economic Entomologists in requesting Congress to increase the allotment of funds for fruit insect investigations by $75,000, this request being based on the serious situation with which fruit growers are confronted because of the limitations on spray residues. The second part of the entomologists' request was also approved; this dealt with the return of $11,000 to shade tree insect investigations which is especially important in Pennsylvania as regards the gypsy moth control. Senator Davis has promised his aid; Senator Reed has not replied at the date of this writing. The latter's stand on the Rayburn Bill to license and regulate all interstate trucks was at least slightly unsatisfactory to the interest of the farmer. Senator Reed wrote: "There will have to be some regulation of motor transportation but I would dislike very much to see it result in either a monopoly or any unnecessary restrictions or increase in transportation charges."

Gilbert W. Peck

Gilbert W. Peck, Extension Professor of Pomology at Cornell University, died at Ithaca, New York, from pneumonia, February 8, 1934. Professor Peck judged our Harrisburg fruit show in 1932, giving us a talk at that same meeting. His friends in this Association wish to pay their respects to his memory.

New Small Fruit Book

"Small Fruit Culture," by J. S. Shoemaker of the Ohio Agricultural Experiment Station is recommended to all members wishing to secure the latest and best information along this line. This book costs $3.50 and is published by P. Blakiston's Sons and Co., Inc. It is thoroughly modern and is designed for both a text and reference book and as a guide for field practices. It is a standard text at State College. R. H. SUDDS, *Sec'y.*

Utah Fruit Growers Convene

MANY vital problems confronting the Utah fruit growers of today were discussed at the annual convention of the Utah State Horticultural Society recently held at Salt Lake City. President W. N. Barker, a North Ogden grower, presided and the speakers included persons prominent as growers, agricultural college authorities, bankers, State officials, water supply authorities, and others.

Nephi Valentine, of Brigham City, was elected president of the association for the next 12 months. Francis M. Coe of the U. S. A. C., was re-elected secretary.

Fruit Outlook for 1934

The outlook for fruit in all important fruit growing sections of Utah is very good this year. Buds are out much earlier than normal as a result of the exceptionally mild winter.

Utah is expected to have more apples and peaches this year than last. Also more cherries, apricots, pears, and, in fact, almost every other fruit. A great deal of damage was done to the State's fruit crops last year by winter-killing of the trees, the long cold, wet spell which came during the spring months and the subsequent drought. F. L. W. BENNETT.

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PROGRESS IN FRUIT MACHINERY

(From page 16)

developed on a commercial scale about 1915, first in California and soon after in the Northwest. Now they are becoming common, at least not unusual in all apple growing districts. Central pumping plants, from which radiate the underground pipes, are often equipped with double tanks of 1,000 gallons or more capacity, having huge pumps powered with gas engines or electric motors.

Dusting machinery went through much the same evolution as that of spraying. Hand dusters were used in applying sulphur, pyrethrum and arsenicals, even before the days of the barrel pump. Commercial dusting, however, did not come in until 1916, with the development of machines powerful enough to blow fine dust to the top of the trees.

Up-to-date packing house machinery now includes the fruit sizer and grader, with the fruit wiper or fruit washer as necessary auxiliary equipment in most districts. New developments in the latter are of too recent origin to be of historical significance, commercial fruit wiping having come into general use in the Northwest in 1924, followed by fruit washing in 1926. The first fruit grader was manufactured on a commercial basis in 1907. The first sizing principle adopted is still in use today, although graders utilizing other principles have succeeded it and are in more extensive use. In general, there are only two main methods of sizing fruit, one based on diameter, and the other on weight.

Transportation machinery from the standpoint of fruit growing may be divided into two divisions, inside and outside the orchard. Within the orchard, it is concerned largely with the motive power for orchard implements and spray machinery and in the hauling of fruit. Tractor plowing began about 1906, at which time the fruit grower started to dispense with horses. The time soon came when many fruit growers found it economical to dispense entirely with horses, whereas the general or diversified farmer needed the animals for at least some phase of his operations. Today the rubber-tired tractor is allowing even further economies. The Michigan Experiment Station has recently shown that these rubber tires resulted in a saving of $1 per day in spraying fruit trees. Tractors so equipped can utilize high gear speeds for the transportation of fruit in and from the orchard, pulling low orchard wagons similarly equipped. The next step will undoubtedly be to put pneumatic rubber tires on spray machines, a type of equipment already introduced in England.

Both inside and outside the orchard, the motor truck has revolutionized the handling of fruit, shortening the period between picking, packing and safe storage, so that the product may go onto the market in the best of condition. An even greater advantage is in the widening of market outlets, while time and costs are being cut down.

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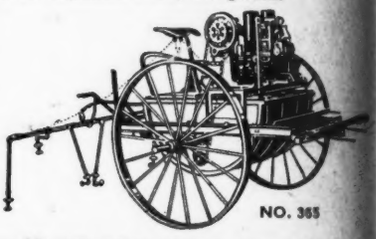

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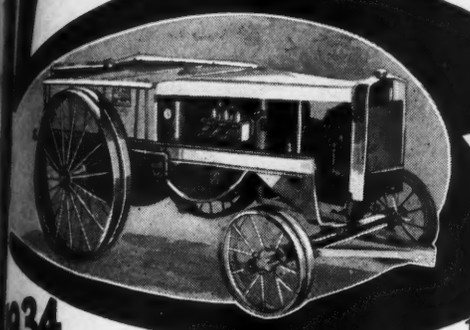

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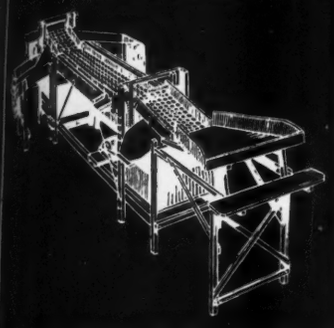

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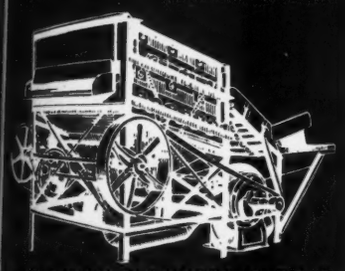

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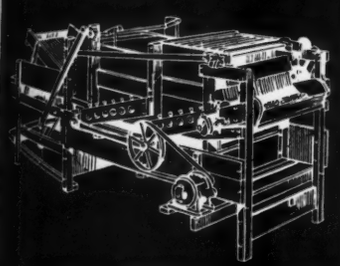

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